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A STUDY OF THE SURGICAL ANATOMY OF THE VAGINA, WITH SPECIAL REFERENCE TO VAGINAL OPERATIONS

BY

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The Vulva and Anterior Vaginal Wall

The fold of skin containing the body of the clitoris is usually well defined. On each side is a groove, lateral to which lies the inner fold of the labium majus. The prepuce of the clitoris forms a hood over the glans, and on each side passes downwards into the labium minus. The labia minora are also attached to the under surface of the glans at a point in the midline which corresponds to the frenulum. These anatomical relations are not always carefully illustrated in gynaecological diagrams. On each side of the urethral meatus is a small depression which is perhaps best referred to as the *parameatal recess* (Fig. 1). The recess is well defined in virgins and is best displayed by pulling the labia minora outwards at the level of the meatus. The recess is never well marked in severe cases of prolapse, and it is usually not well defined in women of post-menopausal age. In front, the remains of the hymen terminate in the midline at a point about 1/6 in. (0.4 cm.) below the external meatus, but the termination is variable, and in a multipara the hymen sometimes passes into the posterior lip of the external meatus.

If a nullipara is examined in the lithotomy position with a Sims speculum introduced to retract back the posterior vaginal wall, the anterior vaginal wall can be seen to be held up and supported by the underlying tissues. It is therefore wrong to maintain that the anterior vaginal wall is supported solely by the perineum and the levator ani muscles.

In front, below the hymen in the anterior vaginal wall, about 1/4 in. (0.6 cm.) below the urethral meatus, is a transverse groove. This groove is best displayed if the cervix is pulled down with a vulsellum forceps, and it is often well defined in prolapse of the anterior vaginal wall. It is believed that the groove indicates the posterior margin of the urogenital diaphragm. It is suggested that this groove should be named, and a convenient terminology might perhaps be the *submeatal sulcus.*

About 1½ in. (3.8 cm.) from the meatus in the anterior vaginal wall is a second groove which is nearly always well defined. The groove represents the approximate position of the junction of the urethra with the bladder, and the distance between the two grooves is usually about 1¼ in. (3.2 cm.). The groove has a slight convexity in the direction of the meatus, and it is suggested that it should be called the *transverse sulcus of the anterior vaginal wall.* The distance between the submeatal sulcus and the transverse sulcus is about 1¼ in. It will be shown that the transverse sulcus is formed as the result of the fusion of the underlying fascial tissues and represents the upper limit of a ligament which will be described later. Between the two sulci the rugae of the anterior vaginal wall are arranged more or less transversely, but the vaginal wall is attached loosely to the underlying tissues so that rugose pouches are formed. Unless the tissues have been damaged in childbirth, or unless the patient is of menopausal or post-menopausal age, a specialized fold of skin can be distinguished which passes from the lateral vaginal wall deep to the hymen to the vicinity of the submeatal sulcus. This fold is small and is best referred to as the *oblique vaginal fold.* Its significance is unknown, but below and lateral to it is a recess, lying lateral to the urethra, which is best referred to as the *para-urethral recess.*

If the anterior vaginal wall is followed down towards the cervix the limit of the bladder is indicated by a convex groove directed towards the cervix. In cystocele the bladder prolapses between the transverse vaginal sulcus and this *bladder sulcus* (Fig. 1), and it is obvious that very little supporting tissue intervenes between the bladder and the vaginal wall—far less than is found between the submeatal sulcus and the transverse vaginal sulcus in the vicinity of the urethra. Between the transverse vaginal sulcus and the bladder sulcus the rugae are arranged according to a definite pattern. Immediately below the transverse sulcus their direction is transverse, but subsequently they become arched, with the convexity of the arch directed towards the urethral meatus. Further upwards towards the cervix they become transverse, and, finally, slightly convex near the bladder sulcus. The arching of the rugae is caused by the adhesion of the vaginal wall in this neighbourhood to the underlying fascial tissues.

Definition of the Fascial Layers

The fascial layers which lie deep to the anterior vaginal wall can be demonstrated at operation and by cadaver dissection in cases of cystocele in the following way. The cervix is pulled down with vulsellum forceps and firm traction applied both downwards and posteriorly so that the anterior vaginal wall is stretched. An incision is made in the midline, starting at about the level of the transverse vaginal sulcus and extending below the bladder sulcus to reach the front of the cervix. On each side, from the lower end of this midline incision, an oblique or a transverse incision is made (Fig. 2). In the operation of anterior colporrhaphy the direction of the lateral incision depends

upon the severity of the cystocele and upon the amount of the anterior vaginal wall which is to be removed. Kocher's forceps are now applied to the lower angles of the vaginal flaps and *downward* traction exerted. With experience it is possible to reach the correct layer of cleavage with the first incision, but if there is any doubt about the correct layer, gentle traction, applied downwards and laterally to the Kocher's forceps, will gently tear through the tissues until the vesico-vaginal space is opened up. Firmly attached to the vagina is a well-defined layer of fascia called the vaginal fascia, while covering the bladder is a much thinner layer of tissue which forms the vesical fascia. The vesico-vaginal space lies between these two fascial layers. The dissection is now carried in an upward direction as far as the level of the transverse vaginal sulcus. The vesico-vaginal space is always easy to define except in advanced cases of cystocele when the bladder wall has been prolapsed for a long time. In old-standing cases of this kind the vesical and vaginal fascias fuse, so that thick strands of tissue pass between the two fascial layers, and these must be cut through with a scalpel to allow the dissection to proceed in the correct layer of cleavage. Except in these old-standing cases, if once the vesico-vaginal space is opened up, the vesical and vaginal fascias can be separated from each other with the help of gauze wrapped round the finger. Moreover, the separation is bloodless, for there is no communication between the vascular systems of the two fascial layers. Anteriorly, at the level of the transverse vaginal sulcus, the vaginal fascia fuses with the vesical fascia so that there is no true vesico-vaginal space between the transverse vaginal sulcus and the submeatal sulcus. It is therefore necessary to use a scalpel to separate the vagina from the fused fascial layers. The connecting tissues are, however, loose, and they allow the vaginal wall to move upon the underlying fascial layers. It is for this reason that the rugose vaginal pouches are found in this area.

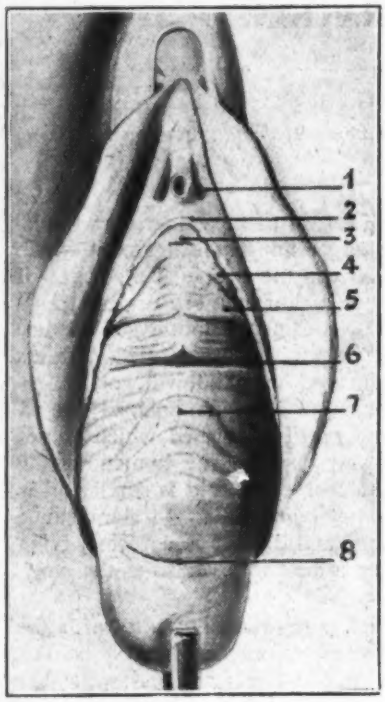

FIG. 1

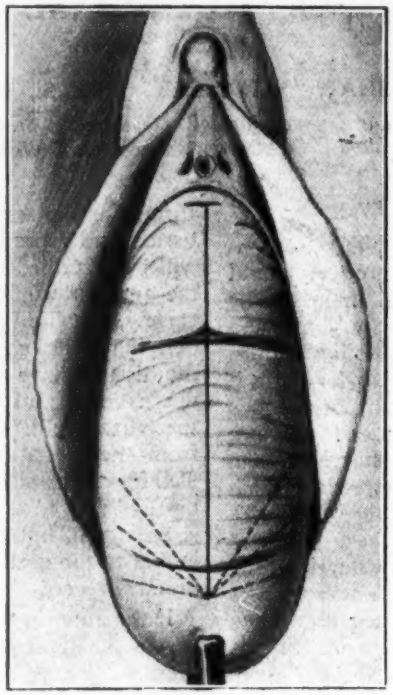

FIG. 2

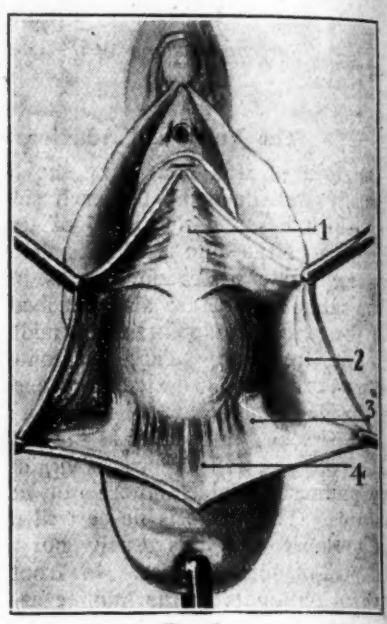

FIG. 3

FIG. 1.—The cervix has been drawn down. (1) Parameatal recess. (2) Hymen. (3) Submeatal sulcus. (4) Para-urethral recess. (5) Oblique vaginal fold. (6) Transverse sulcus of the anterior vaginal wall. (7) Arched rugae of the vaginal wall. (8) Bladder sulcus.

FIG. 2.—The incisions for anterior colporrhaphy. The oblique lines indicate the direction of the incisions for different degrees of prolapse of the anterior vaginal wall.

FIG. 3.—The appearance after the dissection of the vaginal flaps. (1) Post-urethral ligament. The well-defined cranial border is emphasized. In the illustration the vesico-vaginal space has been opened up, and the vaginal fascia (2) remains attached to the vaginal wall. (3) Bladder septum. (4) Vesico-cervical ligament.

Discussion

Operations for prolapse are performed so often that most of the above points are well known. In the average case of prolapse of the anterior vaginal wall the submeatal sulcus and the transverse vaginal sulcus are well defined. Though the two sulci are obvious, little attention has been paid to them previously, and it is one of the purposes of this paper to draw attention to their significance. Exceptions, however, are not uncommon. Sometimes other sulci can be seen between the submeatal sulcus and the transverse vaginal sulcus, and are caused by the arrangement of the pouches of the vaginal wall in this neighbourhood. Sometimes, in severe degrees of prolapse, the transverse vaginal sulcus is held up almost in its normal position. It is of interest that such patients rarely complain of imperfect control of micturition.

The nomenclature of the vaginal and vesical fascias is not universally accepted even at the present day. Even in recent descriptions of vaginal operations the subvaginal fascial layers are referred to as the pubo-vesical fascia, pubo-vesical ligament, paravaginal fascia, and pubo-cervical ligament, and some authors even describe the fascial layers as forming part of the urogenital diaphragm. Usually the vaginal fascia is referred to under these terms, for the vesical fascia is never so well defined, presumably because the bladder alters so much in size.

Much has been written of the fascial tissues of the pelvis, particularly by the Viennese—Tandler (1926), Halban and Tandler (1907), and Peham and Amreich (1934)—but very important contributions have been made both in this country and in America. The term "pelvic fascia" should be restricted to the dense fascial tissues covering the levator ani and obturator internus muscles. All other fascial layers

should be considered as forming the endopelvic fascia. This distinction is of the greatest importance, because the endopelvic fascia always contains plain muscle cells and has an intimate relation to the adventitia of the pelvic veins, with the result that the small veins of the pelvis form plexuses in cavernous-like tissue. One of the functions of the endopelvic fascia is to fix and support the pelvic organs. At the same time the endopelvic fascia is arranged in such a way that it allows for distension of the pelvic organs. Lastly, it regulates the venous return at different degrees of distension.

Peham and Amreich showed that the basal portion, or ground bundle of the endopelvic fascia, lies on the upper surface of the levator ani muscles on each side of the midline and passes backwards to terminate in Mackenrodt's ligament. Passing upwards from the ground bundle

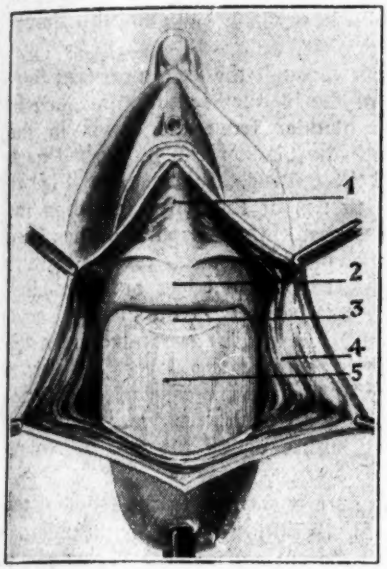

FIG. 4

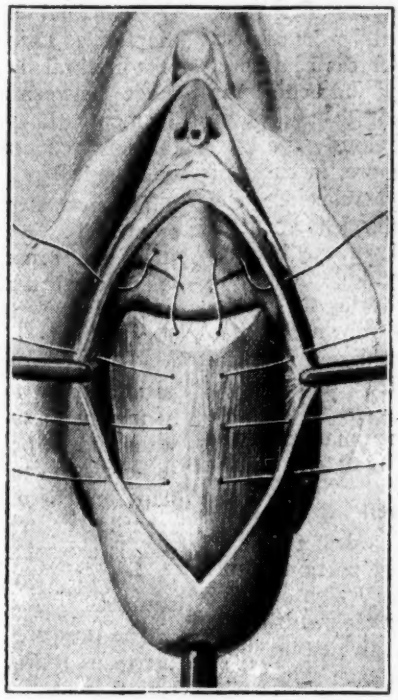

FIG. 5

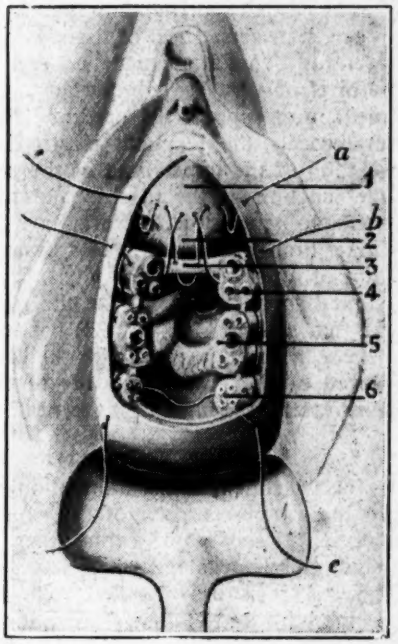

FIG. 6

FIG. 4.—The vesico-cervical ligament has been divided, the bladder retracted upwards, and the vesico-cervical space exposed. (1) Post-urethral ligament. (2) Bladder. (3) Peritoneum of the utero-vesical pouch. (4) Vaginal fascia. (5) Front of the cervix.

FIG. 5.—The method of introducing the sutures after excising all redundant vaginal flaps. In front the stitch is intended to suture the vaginal wall to the post-urethral ligament, and at the same time to suture the post-urethal ligament to the front of the uterus. The lower sutures pass through the vaginal wall and the vaginal fascia, and then through the front of the cervix.

FIG. 6.—Technique for the operation of vaginal hysterectomy for prolapse before suturing the pedicles together. (1) Post-urethral ligament. (2) Bladder. (3) Peritoneum (diagrammatic). (4) The pedicle containing the round ligament, the ovarian ligament, and the Fallopian tube. (5) The pedicle containing the uterine vessels. (6) The pedicle containing the utero-sacral ligament. (*a*) The suture is passed through the vaginal wall, then through the peritoneum covering the bladder, the procedure being repeated on the opposite side. (*b*) The suture is passed through the vaginal wall, the vaginal fascia, the first pedicle, and then through the post-urethral ligament, the procedure being repeated on the opposite side. (*c*) The suture is passed through the vaginal wall and the utero-sacral pedicle, and repeated on the opposite side.

great difficulty if Fothergill's technique is followed. It is for this reason that I always start vaginal operations on the anterior vaginal wall not immediately below the urethra but from a point near the cervix.

The Post-urethral Ligament

The vaginal and vesical fascias fuse in the vicinity of the transverse vaginal sulcus, and pass downwards to become attached to the margin of the urogenital diaphragm at the submeatal sulcus. In addition, the fused fascial layers form a strong supporting layer of white tissue, and its function is clearly to support the urethra. The fused fascial layers should therefore be regarded as forming a ligament, and I suggest that the name *post-urethral ligament* (Fig. 3)

are septa which fix the bladder, vagina, uterus, and rectum, and it is in these septa that the blood vessels pass to reach the pelvic organs. If dissections are made between the fascial layers an almost bloodless operation can be obtained, which has been emphasized by Spalding (1926) particularly, for the vascular systems of the different fascial layers and septa do not communicate except at well-defined points.

The fascial layers are difficult to distinguish by histological examination, as Goff (1931) has emphasized, but they can be defined at operation. For example, the vaginal fascia is utilized in many operations for cystocele, as in Halban's operation, and many American surgeons employ a rather similar technique. Fothergill (1917) as much as anyone realized the importance of the endopelvic fascia, and in the operation known by his name the vaginal fascia and the vaginal wall are sutured to the front of the cervix. Nevertheless, the vesico-vaginal space is exposed only with

should be applied to this band of tissue. The upper cranial margin of the post-urethral ligament is usually well defined, and it is this margin which is responsible for the formation of the transverse vaginal sulcus. In the midline, the post-urethral ligament is adherent to the bladder for a short distance upwards towards the cervix, and it is for this reason that the rugae of the anterior vaginal wall are arched in this area, for here the anterior vaginal wall and its vaginal fascia are fused to the vesical fascia. On each side the ligament is attached to the pubic ramus as far down as the junction of the rami of the pubis and of the ischium. It is important to bear in mind that the sheet of tissue which forms the post-urethral ligament has an inclination which corresponds to that of the axis of the vagina. It must therefore lie almost perpendicular to the urogenital diaphragm. There is no reason to believe that it forms part of the urogenital diaphragm in any way at all. Clearly, it has a corresponding position, and perhaps

serves a somewhat similar function to Denonvillier's fascia (Tobin and Benjamin, 1945) or the recto-prostatic fascia. The terminology I have suggested is tentative, but it seems to me preferable to the other alternative—namely, pubo-urethral. It is one of the main purposes of this paper to draw attention to the post-urethral ligament. I have studied the literature carefully, and I am convinced that the importance of this ligament has not been emphasized. Some writers seem to confuse the ligament with the membranous sphincter. I suppose that most gynaecologists regard the ligament as being part of what they term the pubo-cervical fascia or pubo-vesical fascia. If careful dissection is made, the well-defined cranial limit of the ligament, combined with its dense consistency, impresses me with the importance of regarding the ligament as a separate entity. I differ from Amreich in the interpretation of the ligament, for he regards this as partially surrounding the urethra, whereas I interpret it as a transverse sheet of tissue lying below and behind the urethra. The attachment of the ligament to the pubic rami is of very great importance, and obviously the ligament must support the urethra. Furthermore, in cases of urethrocele the ligament is stretched and relaxed. The relation of the upper limit of the post-urethral ligament to the junction of the urethra and the neck of the bladder seems to be variable. Efforts have been made to define the upper limit with the help of a cystoscope during the operation of anterior colporrhaphy. It is well known that if a curved sound is passed into the female urethra a fold can be felt, as Jeff Miller (1932) has emphasized, at the point where the urethra joins with the bladder. The fold is produced by the inward pressure of the upper margin of the post-urethral ligament on the neck of the bladder.

The Vesico-cervical Ligament

This ligament is a continuation of the vesical fascia on to the anterior surface of the supravaginal portion of the cervix. It consists of a thin sheet of tissue which contains plain muscle cells and which has a linear attachment to the cervix. It is easy to define, and it is divided in both Fothergill's and Halban's operations. On each side of the vesico-cervical ligament lies the bladder septum, which is much thicker and more vascular, and which passes from the vesical fascia to the fascia covering the cervix. In the operation of anterior colporrhaphy a few fibres of the bladder septum must be divided before the bladder can be separated from the front of the uterus. Afterwards the separation is simple, and it can best be carried out with the help of a piece of gauze wrapped round the index finger.

The Vesico-cervical Space

This space lies above the vesico-cervical ligament and intervenes between the bladder and the cervix. It is bloodless and can always be accurately defined. It is bounded cranially by the vesico-uterine ligament, which is a reflection of the vesical fascia from the top of the bladder on to the front of the uterus in the neighbourhood of the junction of the body with the cervix. The ligament is never well defined, but it is seen best at abdominal hysterectomy, when it must be cut through before the bladder can be separated from the front of the uterus.

Technique of Anterior Colporrhaphy

The method which I employ at the present time is based upon the identification of the different ligaments and fascial layers. The view is taken that the direct support of the bladder, between the transverse vaginal sulcus and the bladder sulcus, consists only of the vesical and vaginal fascias together with the anterior vaginal wall. The indirect supports are not being considered here, for they must be dealt with by more elaborate procedures. If the fascial layers have been stretched, and particularly if the patient is asthenic with loss of plain muscle tone of the fascial layers, a cystocele will develop. Fundamentally, the operation consists in mobilizing the bladder, retracting it upwards and anteriorly, and then deliberately suturing the cranial margin of the post-urethral ligament to the front of the uterus in the neighbourhood of the utero-vesical pouch of the peritoneum. In this way the space through which the bladder can herniate is obliterated.

A vertical incision is made in the anterior vaginal wall, with lateral incisions at the lower end, as already described. The vesico-vaginal space is opened up and the lateral flaps are separated from the vesical fascia with the help of gauze wrapped round the finger. Beyond the level of the transverse vaginal sulcus a scalpel must be used to cut through the fascial tissues to separate the vaginal flaps from the post-urethral ligament, for here there is no clearly defined space between the vaginal walls and the post-urethral ligament. If the dissection proceeds too far laterally at this level, cavernous sinuses are opened up, and this should be avoided.

The next step is to cut through the vesico-cervical ligament and a few fibres of the bladder septum, and then to strip and separate the bladder from the cervix in the vesico-cervical space until the bladder can be pushed back as far as the margin of the post-urethral ligament (Fig. 4). The redundant vaginal tissues of the flaps, including the vaginal fascia, are then excised. If the separation has been good only a small number of blood vessels require ligature—namely those belonging to the cut edges of the vaginal walls and perhaps a few small vessels in the bladder septa. If necessary, the vaginal fascia can be separated from the flaps and used to form a reduplicating layer, but this is regarded as unnecessary in the average case. If the cystocele is extensive the bladder may be invaginated either by means of a purse-string suture or by a series of reefing sutures.

The post-urethral ligament is sutured to the front of the uterus as follows (Fig. 5). A suture of No. 2 chromicized catgut is passed through the cut edge of the vagina about 1½ in. (3.8 cm.) below the urethra, starting on the patient's left side. The suture is now passed through the post-urethral ligament and then through the front of the cervix near the utero-vesical pouch. It is then passed through the post-urethral ligament on the other side of the midline and, finally, through the vaginal wall of this side at a point 1½ in. below the urinary meatus. The assistant now pushes back the bladder, and when the suture is tied the post-urethral ligament becomes sutured directly to the uterus. As a result, the space through which the bladder can prolapse is obliterated completely and a firm ligamentary support by means of the post-urethral ligament is given to the bladder. Various modifications are possible. Sometimes the post-urethral ligament can be sutured direct to the front of the uterus by a series of interrupted sutures arranged to form a horizontal layer. In severe cases of cystocele more than one of these key sutures can be introduced. I believe that the only technique comparable to the above is that described by Lockyer (1913).

The next part of the operation consists in suturing the cut edges of the vagina, including the vaginal fascia, to the front of the supravaginal portion of the cervix, just as in the original Fothergill technique. The cut anterior vaginal wall between the cranial margin of the post-urethral ligament and the meatus is now dealt with. The pouches are redundant and a fair amount of vaginal tissue can be excised. If there has been stress incontinence a shelf can be fashioned by a series of interrupted Lembert sutures introduced through the post-urethral ligament. The operation

is of fundamental importance in the treatment of stress incontinence associated with cystocele, and the end-results are excellent, for the urethra is stretched and elongated both upwards and backwards as the result of the operation.

Modification of Fothergill's Operation

A midline incision is made in the anterior vaginal wall and the lateral incisions are placed transversely. The vaginal flaps are dissected free as in an anterior colporrhaphy, and the bladder is mobilized in the same way. I suture the post-urethral ligament to the front of the upper part of the supravaginal portion of the cervix, as in the technique for anterior colporrhaphy. The lateral incisions are continued round the back of the cervix and the cervix is then amputated. If the prolapse of the uterus is of a severe degree not only the bladder septum but the basal portions of Mackenrodt's ligament are sutured to the front of the cervix. The object is to take up the slack in a lax ligament, and the procedure is usually successful. Moreover, the suture tends to make the uterus anteflexed. Subsequently, the raw surface of the cervix is covered by the Bonney-Sturmdorf technique. Gough's (1931) method is a great help if there is extensive prolapse of the upper part of the posterior vaginal wall.

Vaginal Hysterectomy for Prolapse

This operation is perhaps the most suitable form of operative treatment for post-menopausal women with severe degrees of prolapse of the uterus. The operation is relatively simple provided that the cervix can be pulled down outside the vaginal orifice, and provided that the uterus is not much enlarged. The method is used if patients are in the child-bearing period of life and suffer from symptoms, such as menorrhagia, which demand surgical or radiological treatment, and have a moderately severe degree of prolapse of the uterus. The technique becomes difficult if the uterus does not prolapse to the extent that the cervix can be pulled through the vaginal orifice. My impression is that most patients with prolapse maintain that they feel very much better in themselves if the uterus is removed, which is a factor of very considerable importance.

Technique

A midline incision is made in the anterior vaginal wall, from which pass transverse incisions near the cervix. The technique of an anterior colporrhaphy is employed to mobilize the bladder after cutting through the vesico-cervical ligament. The vesico-cervical space is identified, the bladder retracted upwards, and the peritoneum of the utero-vesical pouch exposed. This procedure is very simple provided that the vesico-cervical space has been opened up cleanly. The peritoneum is now cut through and the body of the uterus pulled down through the opening in the utero-vesical pouch. The fundus of the uterus can usually be hooked down with a finger. In difficult cases vulsellum forceps or uterine-holding forceps are necessary. The uterus is now removed by the method advocated by Franz and by Mayo. Curved clamps with horizontal striations are applied on each side of the uterus to contain the ovarian ligament, the Fallopian tube, and the round ligament. The tissues are cut through on the uterine side of the clamps. A second pair of clamps is now applied to the uterine arteries at the base of the broad ligaments and the uterus further separated with a scalpel. At this stage of the operation the uterus is drawn downwards, which exposes any prolapse of the peritoneum of the pouch of Douglas. This is regarded as being an important step in the operation, and it is quite simple to separate cleanly any prolapsed peritoneum of Douglas's pouch and to divide it along its attachment to the sigmoid. The next step in the operation is to hold up the cervix with vulsellum forceps and to finish the circular incision through the vaginal wall at the back of the cervix. Clamps are placed on each side to include the utero-sacral ligaments. After this the uterus is removed completely by cutting through the intervening tissues with a scalpel. In simple cases only six clamps are required. More are necessary if the uterus is enlarged or if there is difficulty in pulling down the uterus. In vaginal hysterectomy for prolapse I never now employ the method of dividing first the lateral supports to pull down the uterus. In my hands it is much more difficult, and I place great emphasis on mobilizing the bladder and then pulling down the fundus of the uterus to ensure that the ureters are well away from the operation area. Nor do I first open Douglas's pouch, because I maintain that it is of the greatest importance to remove as much peritoneum as possible from the region of Douglas's pouch, and this can best be done through traction on the uterus to expose the redundant peritoneum.

A shelf is now formed to support the bladder (Fig. 6). A suture is passed through the cut vaginal wall as in the anterior colporrhaphy operation, 1¼ in. (3.8 cm.) below the urinary meatus. It then passes through the post-urethral ligament, then through the peritoneum at its cut edge near its attachment to the bladder. The suture then passes through the other side of the post-urethral ligament and finally through the vaginal wall. The object of the stitch is to join the peritoneum to the post-urethral ligament and to obliterate the space through which the bladder prolapses. If the cystocele has been of a moderate or slight degree this stitch alone helps greatly to hold back the bladder, but if there has been a severe degree of cystocele the bladder must first be invaginated with a purse-string suture. The next stitch passes, as before, through the vaginal wall, then through the post-urethral ligament, and then through the tissues enclosed in the first clamp—namely, the ovarian ligament, Fallopian tube, and round ligament. The suture is then passed through the tissues contained in the corresponding clamp of the opposite side, then through the post-urethral ligament, and finally through the vaginal wall. Neither suture is tied at this stage of the operation. The next step is to ligature together the tissues of the two sides as in Mayo's operation. The untied sutures are now tied. The first suture draws the post-urethral ligament upwards under the trigone of the bladder to support the bladder as in the operation of anterior colporrhaphy. The second suture, after being tied, draws together the shelf formed by the round ligaments, the ovarian ligaments, and, to a minor extent, the Fallopian tubes, and the shelf is anchored to the post-urethral ligament. Lastly, the cut edges of the vaginal wall are sutured together with a series of interrupted stitches.

One of the most difficult technical problems in the operation of vaginal hysterectomy for prolapse is to prevent the subsequent development of a hernia of Douglas's pouch. If the prolapse is of a severe degree, I always begin the operation of colpoperineorrhaphy before closing completely the posterior part of the incision. If the patient is elderly and has agreed that the vagina can be made so small that further sexual intercourse will be impossible, the problem is simple, for the utero-sacral ligaments, the rectal septa, and even the two levator ani muscles can be sutured to the posterior part of the shelf. The vagina can then be narrowed and shortened and an excellent prognosis can be given. If, however, the patient wishes to continue her sexual life the problem is much more difficult. For its solution the vagina must not be shortened or narrowed to the extent of preventing sexual intercourse, yet care must be taken to avoid the recurrence of prolapse. It may be most convenient if the method I use for colpoperineorrhaphy is now described.

Colpoperineorrhaphy

Lane's tissue forceps are attached to the vaginal wall in the midline, well above the level of the levator ani muscles. Two further Lane's forceps are applied on each side to the termination of the labium minus into the remains of the fourchette. A midline incision is made through the vaginal wall to meet a second transverse incision made with a scalpel along the line of the remains of the fourchette. In

this way the two flaps are demarcated, and the vaginal tissue they contain is dissected clear of the underlying tissues, which consist mainly of scar tissue in prolapse cases. The technique is different from that of the operation of anterior colporrhaphy, for the dissection is made with a scalpel between the vaginal wall and the vaginal fascia. Great stress is placed upon dissection of the vaginal wall laterally on each side along the course of the remains of the hymen, otherwise the levator ani muscles will not be sufficiently exposed. The vaginal fascia is now cut through as in Amreich's technique (Peham and Amreich, 1934), high up above the level of the levator muscles, so that the recto-vaginal space is exposed. If the rectum is now retracted back with a finger the rectal septa, with their veins and arteries, can be exposed. The septa represent the downward continuation of the utero-sacral ligaments. They terminate in the ground bundle on the upper surface of the levator muscles. Their veins and arteries are easily torn, and they require careful ligation. The next step is to excise the redundant vaginal tissue contained in the flaps.

With cases of complete procedentia and after vaginal hysterectomy for prolapse the incision is continued upwards until it joins the incision at the top of the vagina. Redundant vaginal tissue is excised when necessary. Bleeding comes from the descending branches of the vaginal artery, which must be ligatured in the space between the vaginal fascia and the vaginal wall. In cases of prolapse of Douglas's pouch it will be necessary to excise the peritoneal sac if a vaginal hysterectomy has not been performed. A recurrence of a hernia of Douglas's pouch can be prevented by suturing the two utero-sacral ligaments and the upper parts of the rectal septa direct to the shelf of tissue which has been formed in the operation of vaginal hysterectomy. In severe cases the upper and anterior parts of the two levator muscles must be identified and then sutured to the shelf as in Everard Williams's technique, but this procedure almost always shortens and narrows the vagina. The vagina may therefore be shortened in two ways—either by excising a great deal of redundant vaginal tissue in its upper part or by suturing the levator ani muscles to the shelf formed from the two broad ligaments. Recurrence of a hernia of Douglas's pouch can be prevented with certainty if the vagina is shortened drastically. If, however, the patient is to resume sexual relations the vagina must be left long, and in these cases only the utero-sacral ligaments are sutured together.

The next step is to suture together the two levator ani muscles. Great stress is placed upon suturing them together at least 2 in. (5 cm.) above the level of the vaginal orifice, and for this to be done the muscles must be exposed as far forwards as this. Two fingers placed in the aperture thus formed will indicate how narrow and how long the vagina has been made. The first sutures through the two levator muscles should include the rectal septa, and this again is regarded as an important step in the operation. The two levator muscles are now sutured together with interrupted stitches, and the vagina fashioned into the shape of a hollow tube in the usual way.

Operations for Stress Incontinence

These cases can be grouped into those in which the condition is associated with cystocele and prolapse of the uterus, and those in which only the urethra prolapses in the lower half of the anterior vaginal wall. In the prolapse operations, whether anterior colporrhaphy, Fothergill's operation, or vaginal hysterectomy for prolapse, the post-urethral ligament is sutured in such a way that it is stretched in a sagittal direction. Not only that, it is pulled upwards as well. Experience shows that many patients have so much control that they find it difficult to pass urine until they are up and about. If the urethrocele is well marked, a series of reinforcing or reefing sutures are introduced through the post-urethral ligament on each side of the urethra to form, when tied, a further support to the urethra. In my view, it is fundamentally wrong to mobilize the urethra from the pubic rami by cutting through the post-urethral ligament as recommended by some gynaecological surgeons. The end-results for stress incontinence in these cases are extremely satisfactory.

The difficult cases are when stress incontinence is complained of without prolapse of the bladder. In these cases an effort is always made to separate the bladder from the vaginal wall and to stitch the upper edge of the post-urethral ligament to the front of the cervix. If this can be done the end-results are good. Alternatively, the following technique is employed. A midline incision is made through the lower parts of the anterior vaginal wall and two vaginal flaps are dissected away superficial to the post-urethral ligament. The incision is continued upwards towards the cervix and the bladder separated from the anterior vaginal wall by working upwards towards the situation of the cervix. The post-urethral ligament is now separated from the vaginal wall laterally. The next step is to pass a series of mattress sutures. These start cranially, first through the vaginal wall on one side of the upper limit of the incision, then through the post-urethral ligament, and finally are brought down through the vaginal wall at a corresponding point at the other side of the incision. When this suture is tied the post-urethral ligament is drawn upwards and fixed to the anterior vaginal wall much higher up than normally. Two or three sutures of this kind should be inserted. Subsequently the post-urethral ligament is reinforced by a series of Lembert's sutures, which form an additional shelf below the urethra. The end-results of this operation are extremely good. The Stoeckel-Goebel, and the more modern Aldridge (1942), method should perhaps be used only when this relatively simple operation has failed.

Summary

A description has been given of the different folds and sulci in the anterior vaginal wall, and an explanation has been offered of their arrangement.

Attention has been directed to the condensed fascial layer which intervenes between the urethra and the anterior vaginal wall. The topography of this layer of tissue has been described, and it is suggested that the layer should be called the post-urethral ligament.

The methods of defining the different fascial layers and the intervening spaces that surround the vagina have been described.

A description has been given of the various methods of surgical technique in the treatment of prolapse which make use of the post-urethral ligament.

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Among legacies left to St. Thomas's Hospital by the late Baroness Riddell are £1,000 to endow a bed for members of the clergy or professional classes, £1,000 to found a medical scholarship for a son of the clergy or professional classes, and £1,000 to found the Lord Riddell Surgical Scholarship.

TREATMENT OF REITER'S SYNDROME BY GOLD SALTS

BY

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AND

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Arthritis and a non-specific urethritis, sometimes associated with conjunctivitis, have been described in relation to a number of different conditions. One of us (Findlay, 1946) has pointed out that in experimental animals—rats and mice—certain strains of pleuropneumonia-like organisms give rise to arthritis and conjunctivitis, while the same lesions have been noted in bovine pleuropneumonia and in contagious agalactia of sheep. In addition, pleuropneumonia-like organisms have been isolated from the urethras of normal persons and more frequently from those of patients with non-specific urethritis. In view of these findings it seemed to be worth while to attempt to isolate pleuropneumonia-like organisms from the conjunctiva and joint fluids of patients suffering from what has, perhaps prematurely, been called Reiter's disease.

Attempts to Isolate Pleuropneumonia-like Organisms

Two patients with arthritis and urethritis, one of them also having conjunctivitis, have been investigated for the presence of pleuropneumonia-like organisms by culture of the joint fluid and blood on suitable media rich in animal protein and by inoculation of blood and joint fluid into mice. The culture of pleuropneumonia-like organisms from the urethral tract is of questionable significance at this stage in view of reports by some workers of successful culture from the normal genital tract. In neither of these cases were positive cultures obtained from the blood or joint fluid. Blood and joint fluid, 0.2 ml., from both cases was injected into the dorsum of the hind feet of 12 mice. One of these mice developed arthritis of the joint after an incubation period of 15 days. We failed to transmit the condition to other mice.

No definite conclusions can be drawn from the production of arthritis in a single mouse: mice are naturally infected with a number of strains of pleuropneumonia-like organisms, some of which may cause arthritis; in addition, it must be remembered that certain rodent strains of pleuropneumonia-like organisms are species-specific. At present the majority of strains of pleuropneumonia-like organisms isolated from man have not been shown to be capable of producing arthritis in rodents; it is therefore merely an assumption that the hypothetical organisms from cases exhibiting Reiter's syndrome should be arthritis-producing in rats or mice.

One peculiarity shown by pleuropneumonia-like organisms is their sensitivity to gold salts. Thus it seemed worth while to study the reaction of patients with Reiter's syndrome to the injection of gold salts. Since these cases were treated Baxter (1946) has reported a case in which there was a slow response to "myocrisin." Details of the treatment of two cases are briefly as follows:

Case 1

A man aged 23 was admitted to hospital on July 17, 1946. In June he had been treated in Germany for non-specific urethritis with 30 g. of sulphathiazole given over five days. There was no further previous history of eye trouble, gonorrhoea, or other venereal disease. The patient was admitted on account of a recurrence of the urethritis. He also had a dry balanitis of one week's duration, with numerous pin-point ulcers on the glans penis. A urethral smear showed many pus cells, but gonococci were not present; the urine was hazy. Three dark-ground tests were performed on exudate obtained from the balanitis with negative results for treponemata. The blood Wassermann and Kahn reactions were both negative. He was given 24 g. of sulphathiazole over four days, and on July 20 he complained of swelling of the terminal joint of the left ring-finger. Within two days the middle joint of the right middle finger and the right hallux were also red, swollen, and tender. A purulent urethral discharge was still present and the urine was slightly hazy. A gonococcal complement-fixation test on July 22 was negative; the blood sedimentation rate was 85 mm. in one hour.

On July 24 an intravenous T.A.B. vaccine, 50,000,000 organisms, was given with good response, the maximum temperature reaching 103° F. (39.4° C.). The following day there was improvement in the joints, but by the 29th they had relapsed somewhat. He was then given 2,400.000 units of penicillin (40,000 units three-hourly for seven and a half days), and by Aug. 5 the arthritis of the toe had improved, but improvement in the fingers was only slight. The urethral discharge was still detectable in the early morning, when many pus cells were present; the urine was clear. On Aug. 8 a blood count showed 10,600 white cells per c.mm. (66% polymorphs, 30% lymphocytes, 3.5% mononuclears, 0.5% eosinophils). On Aug. 10 an effusion appeared in both knees; this disappeared spontaneously from the right side within four days. On Aug. 18 the fingers were no longer red but still swollen, as was the right big toe. There was a marked effusion in the left knee and the balanitis had not cleared. The following investigations were done: blood sedimentation rate, 30 mm. in one hour; haemoglobin, 12.7 g. %; packed cell volume, 40%; white blood count, 12,000 (polymorphs, 84%; lymphocytes, 14%; mononuclears, 2%); blood uric acid, 3.3 mg. per 100 ml. Skiagrams of the affected joints showed no bony changes. Stool culture revealed no pathogens.

On Aug. 18 conjunctival and urethral smears were taken for special examination and the left knee was aspirated. It was then decided to employ gold therapy. Myocrisin was given intramuscularly. The dates of the various injections and the relevant sedimentation rates are as follows:

Date	B.S.R.	Myocrisin
Aug. 18	30 mm. in 1 hour	—
„ 21	—	0·01 g.
„ 26	—	0·02 g.
„ 27	31 „ „	—
Sept. 2	—	0·02 g.
„ 7	18 „ „	0·025 g.
„ 13	11 „ „	0·025 g.
„ 19	12 „ „	0·05 g.
„ 25	—	0·05 g.
	Total in 5 weeks:	0·2 g.

The temperature was taken four-hourly, the urine was tested daily for albumin, the skin closely watched for dermatitis, and a blood count done twice weekly. No untoward reactions were noticed. The balanitis rapidly cleared, though the urethral discharge resolved but slowly. The joints showed slow but steady improvement.

On Sept. 18 there was a brief setback; fluid reappeared in the left knee and there was a slight swelling of the left ankle. This subsided within two days, and the patient was discharged to duty on Sept. 24. On Sept. 19 Flexner vaccine was instilled into the right eye (see below), with negative results.

Case 2

A man aged 23 was admitted to hospital on Aug. 20, 1946. In May, 1944, he had had acute gonorrhoea, which was treated with sulphathiazole, 5 g. daily for five days. In December, 1944, he developed pain and swelling in the right foot associated with balanitis, and gonococcal arthritis was diagnosed. He was treated with a penicillin drip (dosage unknown) without effect, and later received T.A.B. and physiotherapy; by April, 1945,

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he had fully recovered. Since that date he had been well except for occasional conjunctivitis and a very slight urethral discharge. There was no previous history of dysentery or venereal disease other than the above.

On Aug. 13 he sought advice on account of a slight urethral discharge of one week's duration. A smear showed pus cells but no gonococci; he was given sulphathiazole 5 g. daily for five days. On the following day he fell and injured his left knee. When he returned on Aug. 20 he showed an improvement in the urethral discharge, but a marked effusion was present in the left knee; moreover, there was a severe bilateral conjunctivitis of two days' and a balanitis of six weeks' duration.

He was admitted to hospital and given 200,000 units of penicillin in five three-hourly doses of 40,000 units. On the 21st his urethral smear continued to show many pus cells, while the urine was hazy in two glasses. The blood Wassermann and Kahn tests and the gonococcal complement-fixation test were negative; blood count: haemoglobin, 115%; red cells, 5,490,000; white cells, 10,600; polymorphs 61%, lymphocytes 35%, mononuclears 4%; urine: albumin, sugar, ketones, bile negative; stool: no pathogens found in culture; blood sedimentation rate, 6 mm. in 1 hour. A skiagram of the knee revealed no bone injury.

On the following day urethral and conjunctival smears were taken for special examination and the left knee was aspirated. Gold therapy with myocrisin was then begun. Temperature recordings, daily urine examination for albumin, and skin inspection and blood counts twice a week did not reveal any toxic reactions. The dates and amounts of the myocrisin, together with the relevant sedimentation rates, are as follows:

Date	B.S.R.	Myocrisin
Aug. 22	12 mm. in 1 hour	0·01 g.
„ 28	—	0·02 g.
Sept. 2	—	0·02 g.
„ 7	3 mm. in 1 hour	0·025 g.
„ 13	4 „ „	0·025 g.
„ 19	5 „ „	0·05 g.
„ 25	—	0·05 g.
	Total in 5 weeks:	0·2 g.

The eyes were treated locally with saline washes and resolution was rapid, both becoming normal within 72 hours. The balanitis showed steady improvement and had quite gone by Sept. 2. The urine cleared within three days, but a morning urethral discharge persisted for three and a half weeks. The knee filled up again after the initial tapping, but had begun to subside when a second aspiration was performed on Sept. 18, after which time it did not refill.

On the 19th Flexner vaccine was instilled into the right eye without result (see below). The patient was discharged to duty on Sept. 25. There was no improvement with penicillin, though with gold therapy it was steady and maintained.

The Eye Test

The possible dysenteric origin of some cases of Reiter's syndrome has recently received considerable attention. Wood (1946) states that he succeeded in reproducing the sterile conjunctivitis in three cases by instilling a drop of Flexner vaccine into the eye. It was decided to apply this test to these cases. Flexner bacteria (mixed I–VI) were killed by heat at 55° C., and a suspension of 3,000 million organisms per ml. was kindly prepared by Lieut.-Col. Archer, R.A.M.C., to whom due acknowledgment is given. It produced no reaction in three rabbits or in two human controls.

A drop of this material was placed in the right eye in the above two cases and in a third case which had previously shown polyarthritis, urethritis, and conjunctivitis and had apparently recovered. No reaction was noted in any of these cases. None of these patients' sera showed any agglutination with strains of dysentery bacilli of the Shiga type. It may be of interest to note that cases of non-specific urethritis, arthritis, and conjunctivitis are not uncommon in West Africans among whom Shiga dysentery is exceptionally rare.

Discussion

Although the hypertherm is probably the most satisfactory treatment for patients with Reiter's syndrome, gold salts appear capable of producing a satisfactory cure. It is, however, unwise to assume from the therapeutic action of a particular drug in different diseases that the causative organisms of these diseases are necessarily related. Antimony salts, for instance, have a curative action in schistosomiasis and in infections due to *Leishmania* and trypanosomes. Penicillin is known to be valueless in diseases due to pleuropneumonia-like organisms, but as streptomycin has been found to be curative in rodent arthritis due to similar organisms (Powell *et al.*, 1946) its action in patients with Reiter's syndrome would be of interest. Further investigation of patients with Reiter's syndrome for the presence of pleuropneumonia-like organisms is desirable.

Conclusions

Apart from the production of arthritis in a single mouse by the injection of joint fluid from one patient, an investigation of two patients with Reiter's syndrome was negative for the presence of pleuropneumonia-like organisms.

Gold salts were curative in two patients with Reiter's syndrome not associated with bacillary dysentery, while penicillin and sulphonamides were of little value.

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SCRUB TYPHUS VACCINE

ITS EFFECT ON SIXTEEN CASES INCUBATING THE DISEASE

BY

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On account of the high incidence of scrub typhus in Mandalay during the autumn of 1945 the D.M.S., Twelfth Army, decided that all troops in that area should receive scrub typhus prophylactic vaccine. Seven and a half litres of the special vaccine prepared in "Operation Tyburn" at the Wellcome Veterinary Research Station, Frant, Sussex (Buckland *et al.*, 1945), was employed in 1-ml. doses, on three occasions at weekly intervals. All the inoculations were given during November, 1945, and, since this was the month of peak incidence of scrub typhus, local commanding officers were glad to co-operate in arranging inoculation parades.

Initially the intention was to inoculate half of each company so that the remainder would serve as controls in the evaluation of the efficacy of the vaccine, but the increased incidence and the commanding officers' suspicion that it was something of an experiment resulted in a fresh instruction that all troops should be inoculated. Inoculation produced a slight local tingling lasting five minutes due to the formalin vehicle, but no immediate constitutional reaction resulted, though fever was reported in some cases, and these are included among the 16 cases which form the basis of this report. In all 2,500 troops were inoculated with prophylactic vaccine.

It had been suggested that the bite of a mite could produce an eschar whether the trombiculid was infected with rickettsiae or not, so this mass-inoculation programme was made use of to carry out a routine skin examination, in which search was made at the time of the first inoculation for eschar-like sores in all troops. It seems worth recording that, apart from cases which were subsequently shown to be incubating the disease, the presence of an eschar in an otherwise healthy man was not reported.

This paper is concerned solely with the immediate effect of the inoculation upon the course of the disease in 16 men who were inoculated fortuitously during their period of incubation of scrub typhus; the question of its prophylactic efficacy in respect of the remainder of the 2,500 inoculated had to be left to a successor.

Post-inoculation Cases of Scrub Typhus

All 16 cases had received one or more inoculations of the prophylactic vaccine between Nov. 10 and 18, 1945, and were received into hospital between Nov. 12 and 20. Eight had come from one unit and four from another unit in an adjacent site at Fort Dufferin, Mandalay. These 12 cases, arising apparently out of their inoculation a few days previously, not unnaturally gave rise to some alarm among the officers and other ranks (who totalled 450). Among the victims were the commanding officer and the second-in-command of the unit most seriously affected. Careful examination of the cases showed that 14 of the 16 had typical eschars with lymphadenitis of related glands. This was most fortunate for me, for anxious and irate senior officers had to be faced with a very definite opinion as to whether any blame might attach to the inoculations which all area troops were in process of receiving. A reasoned explanation was accepted and the inoculation scheme proceeded with. All the cases were subsequently proved by Weil-Felix agglutination tests.

Of the 16 cases, 12 had received one inoculation of 1 ml. of prophylactic vaccine before the development of symptoms, two had received two weekly injections of 1 ml., and two had, during and overlapping the incubation period, received three injections of 1 ml. of the vaccine.

Classification into Four Groups

For descriptive purposes the cases have been divided arbitrarily into four groups, according to the number of doses of vaccine administered and the length of interval between the administration and the development of symptoms, since these two factors appeared to modify the illness. Group I cases received 1 ml. of vaccine less than three days before onset of symptoms; Group II cases received 1 ml. three or more days before onset of symptoms; Group III cases received two 1-ml. doses during or overlapping their incubation period; and Group IV cases three 1-ml. doses during or overlapping the incubation period. A sample case history is given for each group, and particulars of the others will be found in the Tables.

Group I: Case 1

A British officer aged 34 was admitted on Nov. 18, 1945, complaining of not feeling fit since inoculation with scrub typhus vaccine on Nov. 12, and expressing indignation that he should have thus been made ill. Only slight headache had been felt and he had worked until the 17th. He was unwilling at this point to go to hospital, but was finally persuaded to do so.

On examination an eschar was found on the scrotum, with enlarged, tender, rubbery left inguinal glands. The eschar was known to have been present since Nov. 14, and was the only physical sign of disease. The blood pressure was 125/75 mm. Hg. The white blood cells numbered 5,000 per c.mm. (polymorphs, 52%; lymphocytes, 44%; monocytes, 4%; eosinophils, nil).

During the first week of illness he remained bright, ate well, and read technical literature; he was slightly peevish, and had

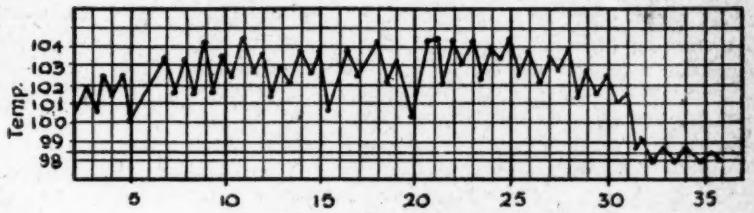

FIG. 1.—Group I, Case 1.

a gently swinging temperature of 101°–102° F. (38.3°–38.9° C.) daily. No further sign appeared. On the seventh day the OX K titre was 1:80 and the blood pressure 100/60 mm. Hg. In the second week the general condition remained good, he continued to sit up to eat and read; a few basal rhonchi and a slight cough appeared. Fever was now maintained at 102°–104° F. (38.9°–40° C.), and the OX K titre was 1:320. The spleen was one fingerbreadth increased, the liver was just palpable, and cerebration was normal. The third week brought no detectable change in his condition, apart from an appearance of tiredness, though the fever continued to swing between 101° and 104° F. (38.3° and 40° C.) daily. Slight insomnia was added to the headache and cough, the OX K titre was 1:1,280, and the blood pressure was 120/70 mm. Hg. Deep reflexes were absent and superficial reflexes feebly present. The white cells numbered 4,200 per c.mm. (polymorphs, 65%; lymphocytes, 23%; eosinophils, 12%). The spleen was one fingerbreadth increased and the liver just palpable.

Between the 22nd and 26th days of illness a few toxic signs appeared—ashen pallor with the smallest degree of cyanosis, extrasystoles, and irritability. He continued to sit up in bed and enjoyed his meals, though he found that he could read only "light" literature. There was no loss in weight, and even after all this time he stated on questioning that he felt quite well, though he looked a shade anxious. This mild course was maintained until fever settled by lysis on the thirty-second day of illness. On the 24th day a small degree of tympanites was noted, and this persisted for three days. At the conclusion of the fever the spleen and the liver were one fingerbreadth increased. The respiratory, gastro-intestinal, and genito-urinary systems were normal. Deep reflexes were increased and the circulatory system was normal. Two months' convalescence was granted, and this passed without incident.

Group II: Case 9

An African aged 25 was admitted on Nov. 19, 1945, giving a history of not feeling fit since Nov. 17. He had been inoculated with 1 ml. of scrub typhus vaccine on Nov. 10. He complained of severe headache, retro-orbital and retrosternal pain, and had a slight cough with mucopurulent sputum.

On examination the throat was injected, the eyes were suffused, and a few rales and rhonchi were heard in the upper zones of both lungs. The blood pressure was 100/70 mm. Hg. There was slight epigastric tenderness. An eschar was noted

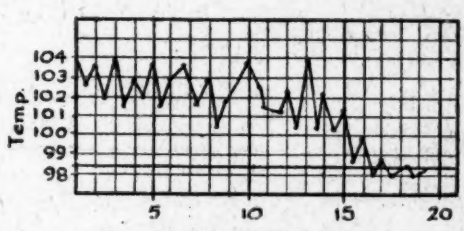

FIG. 2.—Group II, Case 9.

on the anterior wall of the left axilla, and the related lymphatic glands were greatly enlarged, rubbery, and tender. Other lymph nodes, especially the posterior cervical, were also enlarged and tender. The spleen was one fingerbreadth increased; the liver was one fingerbreadth increased and tender. No rash

was seen. Fever rose within 48 hours to 104° F. (40° C.) daily, never falling to normal at any time. Deep and superficial reflexes were normal. The urine was normal. The patient lay quietly in bed and had none of the usual buoyancy of the West African. The white cell count was 5,600 (polymorphs 58% ; lymphocytes, 38% ; monocytes, 2% ; eosinophils, 2%).

During the first week all the above-mentioned signs and symptoms increased in intensity. Bronchitis became severe and headache most intense. The blood pressure remained at 100/70 mm. Hg, and the pulse rate did not exceed 110. He lay quietly in bed obviously frightened. On the seventh day of illness his OX K titre was 1:40, his deep reflexes were abolished, and he was complaining of mid-abdominal pain. In the second week the fever continued unabated with continuation of headache and bronchitic signs. To these was now added dyspnoea with a respiratory rate of 46 per minute. The blood pressure dropped to 95/50 mm. Hg. The urinary chlorides fell to 3 g. per litre. By now the spleen was increased 2½ and the liver 1½ fingerbreadths. Further complaints were of pain in the right elbow-joint and pain with swelling in both knee-joints. Acute laryngitis with complete aphonia developed, and some slight delirium with maniacal behaviour occurred ; this had to be treated with intramuscular paraldehyde. The OX K titre was now 1 : 80. On the 15th day resolution started and fever settled by lysis, with sudden cessation of symptoms and gradual clearing of all physical signs. Deep reflexes returned and became exaggerated, the blood pressure rose to 110/70 mm. Hg, the white cell count was 6,500 (polymorphs, 46% ; lymphocytes, 48% ; monocytes. 4%; and eosinophils, 2%). The spleen and liver were palpable and two fingerbreadths increased ; the OX K titre had risen to 1: 320. Recovery was very rapid and he was fit for transfer to another hospital on the 18th day of illness.

TABLE I.—*General Clinical Findings*

Case No.		Race	Date of Inoculation	Date of Onset	Site of Eschar	Glands Involved	Rash	Respiratory	Abdominal	Deafness	Days of Fever
Group I	1	B.O.	12th	12th	Scrotum	Inguinal	Nil	Bronchitis	Tympanites (21)	Slight late	32
	2	I.O.	12th	14th	Penis	,,	Morbilliform	Bronchopneumonia	,, ,,	Late marked	34
	3	I.	14th	14th	Rt. lumbar	,,	Nil	Nil	Nil	Nil	17
	4	B.	12th	14th	Lt. flank	,,	Morbilliform	Mild bronchitis	Tumid	Slight	26
	7	I.	14th	16th	Nil	General	Nil	,,	Tympanites (7)	,,	12
	11	A.	10th	10th	Scrotum	Inguinal	,,	Bronchitis	Slight tympanites (14)	Nil	14
	12	A.	10th	8th	Lt. shoulder	Axilla	,,	,,	Tympanites (19)	,,	18
Group II	5	I.	12th	16th	Rt. ear	Cervical	,,	Slight bronchopneumonia	,, (11)	,,	15
	6	I.	14th	19th	Nil	General	,,	Slight bronchitis	,, (10)	,,	12
	8	I.	14th	19th	Rt. flank	Inguinal	,,	Bronchitis	Slight tympanites (14)	,,	17
	9	A.	10th	17th	Lt. axilla	Axilla	,,	Nil	Nil	,,	16
	10	A.	10th	16th	Rt. axilla	,,	,,	Slight bronchitis	,,	Slight	13
Group III	13	I.	14th, 21st	21st	Penis	Inguinal	,,	Nil	,,	Nil	12
	14	I.	18th, 25th	23rd	Scrotum	,,	,,	,,	Slight tympanites	,,	30
Group IV	15	I.	6th, 13th, 20th	22nd	Rt. axilla	Axilla	,,	,,	Nil	,,	10
	16	I.	12th, 19th, 26th	26th	Rt. groin	Inguinal	,,	,,	,,	,,	9

B = British. O = Officer. I = Indian. A = African. No. in parentheses = Day of onset of tympanites.

TABLE II.—*Agglutinations—OX K*

Case No.		7th Day	14th Day	21st Day	Fever in Days	Eschar	Toxicity
Group I	1 ..	80	320	1,280	32	+	Late, mild
	2 ..	Nil	40	1,280	34	+	Late, severe
	3 ..	40	80	320	17	+	Slight
	4 ..	Nil	80	1,280	26	+	,,
	7 ..	40	160	320	12	—	Toxic, early
	11 ..	Nil	80	160	14	+	Moderate, early
	12 ..	40	160	320	18	+	,,
Group II	5 ..	40	80	640	15	+	Moderate
	6 ..	80	1,280	—	12	—	,,
	8 ..	40	80	320	17	+	Slight
	9 ..	40	80	320	16	+	Toxic, early
	10 ..	40	80	640	13	+	Slight
Group III	13 ..	40	80	Lost	12	+	Very slight
	14 ..	40	80	,,	30	+	,,
Group IV	15 ..	40	80	,,	10	+	Absent
	16 ..	40	160	—	9	+	,,

Group III : Case 13

An Indian aged 30 was admitted on Nov. 28, 1945, complaining of slight headache and chilliness since Nov. 21. He had been inoculated with 1 ml. of scrub typhus vaccine on Nov. 14 and 21. On examination on the seventh day of disease the only abnormalities noted were an eschar on the ventral surface of the penis, with related groin lymphadenitis, and slight injection of the fauces. No rash was seen. The blood pressure was 110/70 mm. Hg. Deep and superficial reflexes were all present and normal. The spleen was increased two fingerbreadths, the liver was just palpable. The white cell count was 6,200 (polymorphs, 65%; lymphocytes, 32%; and monocytes, 3%). The OX K titre on the seventh day was 1:40. The fever swung between 101° and 103° F. (38.3° and 39.4° C.) daily. Throughout the illness he ate well, slept well, and sat up in bed to read, making very little complaint of discomfort. On the 12th day of illness lysis occurred with cessation of all symptoms. On the 14th day the spleen and liver were increased one fingerbreadth, but on the 21st day the spleen was just palpable and the liver was still one fingerbreadth increased. The blood pressure on the 12th day was 100/65 mm., on the 16th day 110/70 mm., and on the 21st day 115/80 mm. Hg. Deep reflexes were feeble on the 12th but were brisk by the 21st day. By the 14th day the OX K titre was 1:80. (Further results were lost in a laboratory fire.) On the 14th day the white cell count was 4,500 (polymorphs, 50%; lymphocytes, 45%; monocytes, 2%: and eosinophils, 3%). Full recovery was rapid.

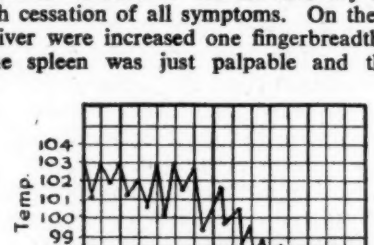

FIG. 3.—Group III, Case 13.

Group IV : Case 16

An Indian Viceroy's commissioned officer aged 25 was admitted on Nov. 30, 1945, complaining of slight fever and frontal headache of four days' duration. Inoculations had been given on Nov. 12, 19, and 26. On examination an eschar was found in the right groin, with accompanying lymphadenitis. No rash was seen. The temperature on admission was swinging between 102° and 104° F. (38.9° and 40° C.), but immediately thereafter dropped to 99°–102° F. (37.2°–38.9° C.) for the next three days, followed by resolution by lysis starting by the ninth

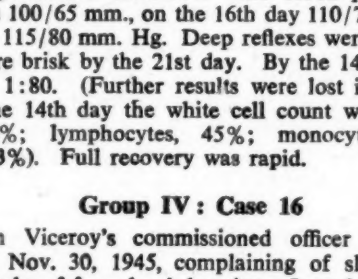

FIG. 4.—Group IV, Case 16.

and completely normal by the tenth day. This was the shortest fever of all 16 inoculated cases and also the shortest fever of the entire series of 130 cases. The eyes were slightly suffused, the spleen was just palpable, the liver was not palpable on the sixth day, and both were unchanged on the tenth day. All other systems were found to be normal.

On the seventh day the blood pressure was 90/65 mm. and on the tenth day 95/70 mm. Hg. The deep reflexes were unaltered throughout. The white cell count on the seventh day was 7,000 (polymorphs, 52%; lymphocytes, 40%; monocytes, 8%). It was difficult to persuade the patient to remain in bed, since he maintained throughout that he felt perfectly fit; he ate and slept well. The Weil-Felix reaction was as follows:

7th day	...	OX K,	1:40	...	OX 19,	1:80	...	OX 2, nil
10th „	...	„	1:80	...	„	1:80	...	„ nil
14th „	...	„	1:160	...	„	1:40	...	„ nil

The blood pressure rose on the 14th day to 105/75 mm. Hg. All fever, signs, and symptoms had cleared by the 12th day of illness, and the patient, at his own urgent request, was not sent to convalescence, as was the normal procedure, but was returned to his unit on the 14th day, with recommendation for 10 days' "excused duty."

Comment

Group I.—The outstanding modifications of the usual course of the disease appeared to be: (1) A considerable lengthening of the fever (average 21.5 days, as against an average for the complete series of 17.38 days and for Group II of 14.5 days). (2) A delay in the development of toxicity in some cases and its relative diminution in others. This latter was a remarkable feature in view of the long fevers (32 days in Case 1, 34 days in Case 2, and 26 days in Case 4) and the relatively high temperature reached daily—103°–104° F. (39.4°–40° C.). It was odd to see all but Case 2 able to sit up in bed to read and to enjoy meals, and to find that, with the same exception, headache, retro-orbital pain, and respiratory signs, when present, were minimal. Of the 16 patients, No. 2 alone showed loss of weight, and he and No. 7 both had a circulatory collapse, the former on the 21st and the latter on the 12th day. The fever was prolonged in Case 12 by a coincident amoebic hepatitis.

Group II.—These cases seemed to be less affected in their general course than those of other groups. It did seem, however, that the course of the illness was probably shortened. The average length of fever in this group was 14.5 days, as against 17.38 days for the entire series of 130 cases and 21.5 days in Group I. All five cases were moderately toxic; four of them showed eschars.

Group III.—These two cases shared the common feature that neither patient was really ill; both sat up in bed to read and eat, and neither had any complications.

Group IV.—The two cases of this group were so mild that had there not been eschars and lymphadenitis to confirm the diagnosis it would have been in doubt, especially so since the final agglutinations were lost by fire and Case 15 reached only a titre of OX K 1 : 80 and Case 16 1 : 160. Neither of these patients really felt ill at all, the fever subsiding in 10 and 9 days respectively, the former being sent to convalescence on the 16th and the latter to his unit on the 14th day.

Summary

The effect is reported of scrub typhus prophylactic vaccine on 16 men who were at that time in the process of incubating the disease.

Of these only one (Case 2) became seriously ill; four others became slightly toxic at some stage of the disease. This compares most favourably with the mortality rate of 7% for the entire series of 130 uninoculated cases and the fact that of these quite 50% were severely toxic.

Inoculation of 1 ml. of scrub typhus prophylactic vaccine seemed to have the effect of lengthening the fever very considerably while materially reducing and delaying the onset of toxicity.

Inoculation of two doses of 1 ml. produced yet milder cases, and inoculation of three 1-ml. doses gave the mildest of all cases seen.

The presence of an eschar in the high proportion of 14 out of 16 cases was most helpful in diagnosis.

The general clinical features are set out in tabular form.

I wish to thank Brig. Harris and Brig. Macnamara, Twelfth Army, for their encouragement and for permission to publish findings; also Lieut.-Col. C. E. Moorhead and Lieut.-Col. P. O'Shea, R.A.M.C., my commanding officers.

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PROGNOSIS OF PRIMARY PLEURISY WITH EFFUSION

BY

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Pleurisy with effusion, when its cause is otherwise in doubt, is now usually believed to be of tuberculous aetiology. It is sometimes followed by frank tuberculosis in the lungs or other organs, but the incidence of such secondary disease has never been statistically established. Published figures range from 5% (Helms, 1934) to 66% (Borelius, 1933), and a recent review by Robson (1944) shows that this wide divergence is due to three factors: (1) A clear definition is not always made between whether parenchymal tuberculosis was or was not already in evidence at the time of the initial pleurisy; indeed, many studies do not include satisfactory *x*-ray diagnosis. (2) Though examination of a group of patients after a period of years may show a certain proportion to have developed phthisis, it cannot establish the date of onset of such disease. This method, on which most investigators have relied, must also miss a proportion of the lesions which arise and resolve spontaneously during the intervening period. (3) Patients lost sight of must be statistically evalued; they vitiate the results in proportion to their number, and this has generally been high.

The present study is based on 233 patients, the sum-total of all cases referred to the Ealing Chest Clinic in the years 1937–44 on account of primary pleurisy with effusion. Of these, 43 were judged to have *x*-ray evidence of parenchymal pulmonary tuberculosis at the outset and are therefore excluded. The remaining 190 were kept under constant observation at this clinic, with regular *x*-ray examination, for maximum periods up to the end of 1945, with the following exceptions: one patient was lost sight of after two and a half years; eight ceased to attend after one year and five after two years owing to removal from the district, etc., but were known to be alive, well, and at work at the end of the maximum observation period. Of these 190 patients 40 have so far developed secondary tuberculosis, and six have died.

It is clear from Table I that the relative incidence of secondary tuberculosis was approximately the same in each age group and that case-fatality rates were also evenly distributed. Of the 40 patients 18 were male and 22 female. It was possible to date within a few weeks the onset of the earliest radiological evidence of a pulmonary

TABLE I.—*Distribution by Age and Sex*

Age Groups (Years)	Cases of Pleural Effusion			No. Developing Tuberculosis	Deaths
	Male	Female	Total		
0–4	1	1	2	—	—
5–9	7	5	12	1	—
10–14	6	7	13	4	1
15–19	44	21	65	15	2
20–24	23	25	48	10	1
25–29	12	10	22	7	1
30–34	5	3	8	—	—
35–39	5	2	7	2	—
40–44	1	3	4	—	—
45+	3	6	9	1	1
Total ..	107	83	190	40	6

lesion, with two exceptions in which there was a lapse from observation of four years between recovery from the initial pleurisy and the detection by skiagram of parenchymal disease; these two cases are shown in Table II as developing in the fifth year.

TABLE II.—*Annual Morbidity*

Year	Total Patients	No. Developing Tuberculosis in Each Year of Observation							
		1st	2nd	3rd	4th	5th	6th	7th	8th
1937	8	—	—	1	—	—	—	—	—
1938	16	2	1	—	2	—	—	—	—
1939	15	—	2	—	—	—	—		
1940	22	2	4	1	1	2			
1941	28	1	2	—	—				
1942	34	5	1	—					
1943	28	7	1						
1944	39	5							
Total ..	190	22	11	2	3	2	—	—	—
No. exposed to risk in each successive year		190	134	102	72	45			
Probability of developing tuberculosis in each year		0·12	0·08	0·02	0·04	0·01			
This probability applied to basic 1,000 patients:									
No. affected during each year		120	70	16	32	8			
No. remaining unaffected on each anniversary		880	810	794	762	754			

The number exposed to risk each year is calculated by the life-table method described by Bradford Hill (1939), its several stages here being compressed for economy of space. The total 190 patients were observed for one year. The 39 originally seen in 1944 could of course not be followed beyond the end of 1945, when the survey was closed, so these must be subtracted, together with the 17 of the remainder who had already developed tuberculosis during the first year, leaving 134 at risk during the second year. A similar calculation is required in each succeeding year not forgetting the further subtraction of the one patient lost sight of in the third year of observation.

The "probability" of developing tuberculosis in any given year for those entering it so far unaffected is simply the number of cases divided by the number at risk. The two fifth-year cases, whose date of onset is unknown, must be divided by the total 190, giving a probability figure of 0.01.

The next step is to apply these probability ratios to an arbitrary total of 1,000 patients, subtracting each year the number that would become affected, leaving the remainder at risk for the following year. The progressive depletion thus taking place leaves us at the end of five years with 754 of our original 1,000 patients still unaffected: in other words, 246 have developed pulmonary or extrapulmonary tuberculosis—approximately 25%.

A similar calculation from the observed fatalities in the original series gives a death rate of 3.5% over the five-year period. This, however, is of limited value, as the insidious and progressive character of many of the pulmonary lesions encountered leads one to expect a considerable mortality in later years.

Conclusions

Observation of 190 patients with primary pleurisy with effusion shows that one-quarter of all such patients developed systemic tuberculosis within five years. Nearly half the cases arose within one year of the initial pleurisy. No case has been found to occur after five years.

Of the tuberculous lesions that developed 15% were extrapulmonary. The remainder first became evident in the lung, though in either case spread to other systems tended to occur, as in any similar lesion acquired in other ways.

The death rate for the five-year period was 3.5%.

The age of the patient did not seem to influence either the incidence or the character of any subsequent tuberculosis.

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A CASE OF BILATERAL SIMULTANEOUS SPONTANEOUS PNEUMOTHORAX

BY

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Bilateral simultaneous spontaneous pneumothorax is relatively uncommon (Glickman and Schlomovitz in 1936 reported only 82 cases in the literature) and is often fatal. The following case is presented because of the rapid uninterrupted recovery and the methods employed to reduce the dangerous positive pleural pressures.

Case Report

A soldier was admitted to hospital on Nov. 28, 1944, with the following history: He awoke that day with a slight pain in the right chest, not associated with cough or dyspnoea, but these symptoms became well established when he began his daily duties, and in the afternoon he reported to the out-patient department, where a spontaneous pneumothorax was discovered. Inquiry into his family and previous medical history revealed nothing of significance.

On examination he was seen to be a well-built healthy individual with little cyanosis and no dyspnoea when at rest. His trachea was displaced to the left, and his apex beat was located 1 in. (2.5 cm.) external to the mid-clavicular line. There was diminished movement of the right chest, the percussion note was more resonant on the right side, and breath sounds were diminished in the right lung. *X*-ray examination confirmed the diagnosis of a complete right pneumothorax and he was ordered complete bed rest. On Nov. 30, when using a bed-pan, he experienced a sudden pain in the left chest and rapidly became extremely cyanosed and dyspnoeic. Examination revealed the presence of a bilateral pneumothorax, and efforts were immediately made to relieve the man's respiratory embarrassment. His intrapleural pressures were: right, + 3 ⟶ + 8; left, + 3 ⟶ + 6; after the removal of 1,200 ml. of air from each pleural cavity they became; right, − 3 ⟶ + 4; left, − 3 ⟶ + 4. His general condition improved for a short time but his cyanosis and extreme dyspnoea soon

returned, and decompression was again carried out in the early evening, a further 1,200 ml. being removed from each pleural cavity.

Whilst considering how we might best leave him for the night, our radiologist, Capt. Tomlinson, produced an article by Major H. Fuld (1944) describing a simple device for the control of tension pneumothorax. It was decided to try this method of decompression, and a modified French blood-transfusion needle which passed through the centre of a rubber diaphragm was inserted into each second intercostal space close to the sternum. Each needle was connected to a one-way outlet valve of a standard transfusion apparatus which permitted only the egress of air. These in their turn were connected to short lengths of rubber tubing which were strapped to the chest wall. The man's general condition improved considerably until the early morning, when the needles slipped a little and became blocked, necessitating clearance with a stylet and readjustment. As a result he developed emphysema of the chest wall, neck, and face. On Dec. 1, the needles were removed and reinserted in the fifth intercostal spaces in the anterior axillary line, and in the afternoon the intrapleural pressures were: right, 0 $\longrightarrow$ -2; left, 0 $\longrightarrow$ -2.

The needles were finally removed the next day, as there was no cyanosis or dyspnoea, and a course of sulphadiazine (30 g. in all) was started—it was thought that he might develop an infected effusion as a result of the repeated needlings. However, he made an uninterrupted recovery from this date; his lungs expanded steadily, there was no pleural effusion, and the emphysema subsided. By Dec. 10, ten days after the onset of symptoms, his lungs had almost completely re-expanded and he was evacuated to England by hospital ship.

Unfortunately, the photographic copies of the *x*-ray films are very indifferent and would not bear reproduction. The first film, taken soon after the left lung collapsed, showed a small nubble of lung at each hilum, surrounded by air. There were no adhesions and no mediastinal shift. Both lungs expanded evenly, but the left side eventually lagged a little behind the right, and when the patient was evacuated the right lung had expanded completely.

Discussion

The literature lays great stress on the frequency of evolutive pulmonary tuberculosis in the causation of bilateral spontaneous pneumothorax, McMahon (1932) giving a mortality rate of 58%, compared with 16% due to emphysema. Glickman and Schlomovitz (1936) in their review of 82 cases (fatal and non-fatal) state that 38% were tuberculous, 12.5% were due to emphysema, and 21% were in the "idiopathic" group; pneumoconiosis, congenital cysts, bronchopneumonia, and tumours accounted for the remainder. Emphysema was found to be the cause of death in the cases recorded by Meyer (1917), Werner and Thearle (1942), and King and Benson (1944).

Olbrechts (1930) divided the bilateral condition into simultaneous and successive; in the former both lungs collapse at the same time or one follows the other before the air has been absorbed. In discussing the aetiology he suggests that it is either a coincidence or an anatomical disposition (congenital or acquired) which leads to an added fragility of the surface of the lungs. Le Wald (1926) suggested the passage of air from the right to the left pleural cavity across an orifice in the mediastinum, and commented on the occasional fistulization of the mediastinum in the course of a therapeutic pneumothorax. This theory was also mentioned by Bedford and Joules (1929), who suggested that it might explain the fact that they aspirated only one side of the chest, with complete recovery. The prognosis is very poor in tuberculous cases and is little better in emphysema, whereas the "idiopathic" cases usually make a complete recovery.

There is no evidence of tuberculosis, emphysema, pneumoconiosis, or lung infection in my case, and it would appear to come into the "idiopathic" group. In order to prevent a recurrence the patient was sent home to England, for consideration of the artificial production of adhesions. In considering the conduct of the case it should be remembered that the needles must be long enough to pass into the pleural cavity in comfort and so obviate the possibility of surgical emphysema; that it is not necessary to take the rubber tubing under water (thus allowing greater nursing freedom); and that it is safer to check the pressures at regular intervals in order to determine the progress of the condition and the amounts of air to be removed. Finally, sulphadiazine was given prophylactically, but it is impossible to state whether it had any beneficial influence on the uncomplicated recovery.

Summary

A case of bilateral simultaneous pneumothorax is presented, with a description of the method employed in an endeavour to overcome the tension pneumothoraces.

The literature has been reviewed from the point of view of aetiology and of prognosis, and the suggestion is made that the case falls into the "idiopathic" group, in which the outlook is reasonably good.

I wish to thank Major W. R. Trotter, R.A.M.C., and Capt. M. N. Tomlinson, R.A.M.C., for their assistance, and Col. R. W. Savage for his permission to publish this case report.

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Medical Memoranda

End-Result of Colectomy for a Case of Chronic Constipation

The following is a report of a case of chronic constipation due to lack of tone in the musculature of the large bowel. After extensive medical measures had been tried unsuccessfully colectomy, with implantation of the ileum into the lower third of the pelvic colon, cured the constipation and produced great improvement in the mental and physical health of the patient.

Case Report

In January, 1940, a young man of 21 came to me with intractable constipation. He was thin, sallow in complexion, and very worried. He had consulted many doctors in the past four years without success, and if nothing further could be done he said he would take steps to end his life. He had been treated by massage, daily enemas, and colonic wash-outs, diet, liquid paraffin and other drugs, physical exercises, and suggestive treatment. Nothing had helped him, and heroic doses of purgatives and violent exercise were necessary to get his bowels to act as often as once a week. As the days went by without a bowel action he developed persistent headaches, an increasing feeling of lassitude, and complete anorexia. His chemist's bills were getting him down, and he considered that if he had to spend so much of his day for the rest of his life endeavouring to get an action of his bowels, life would not be worth living. He was very pessimistic about the outcome of his visit to me, and his case seemed most unpromising. His past history was negative: no serious illnesses, no history of dysentery or excessive constipation as a child. He was fond of exercise, chiefly walking, tennis, and riding. He had been fit and healthy until four years before, when constipation of increasing severity began to trouble him.

Examination showed him to be much under weight, with a dry inelastic skin. His tongue was furred. The abdomen was normal except for many borborygmi. Reflexes were normal, and the

Kahn and Wassermann reactions negative. *X*-ray examination disclosed great delay, chiefly in the ascending and transverse colons, and a barium enema ran easily back to the caecum, causing huge dilatation of the whole large bowel. The blood, urine, and faeces showed no abnormality. In view of his mental state, and realizing the futility of further medical treatment, I decided to operate.

Laparotomy was performed on Jan. 20, 1940. There were no adhesions or bands, and the only pathological feature was a slightly dilated extremely mobile colon. The dilatation was most pronounced in the ascending and transverse colons, and beyond the splenic flexure the gut was empty and collapsed. There was a remarkable lack of tone throughout the whole of the large bowel.

It seemed possible that some kinking was occurring at the splenic flexure owing to the abnormal mobility, and accordingly an anastomosis was made between the transverse and descending colons. The patient made a good recovery. His defeatist outlook was jolted when he passed a daily motion with the aid of liquid paraffin only, from the seventh day onwards. He left hospital on the twenty-first day after operation considerably cheered, but firmly convinced that he would soon return to his former state—and he did!

Four months later he returned as depressed and as constipated as ever. I reopened his abdomen on May 24. The caecum and all the large bowel down to the centre of the pelvic colon were removed, and the ileum was anastomosed to the lower end of the pelvic colon. He made a good recovery, and liquid stools were passed daily, without medicine, from the fifth day after operation. He was discharged from hospital on June 25, feeling well, and passing one or two liquid stools a day. His mental outlook, despite encouragement, was still poor; he felt certain that the old trouble would reassert itself before long. He was then transferred to a small out-station, and I heard nothing more from him until June 6, 1944, when I received a letter, part of which I quote: "I am pleased to say that I am now in perfect health. I am sure you would not recognize me now as I have grown quite fat. My health seems to improve every day, and I am not taking any medicine at all; a little brown bread is all I need if I get at all constipated. The last operation seems to have been a wonderful success."

The pathology of the bowel in this case is not clear. The small intestine was slightly dilated and thickened, but in the colon there was no hypertrophy of the muscular coat or thickening of the mucosa as seen in Hirschsprung's disease or megacolon. There appeared to be a lack of tone in the musculature which allowed the bowel to distend to a great size without causing either pain or peristaltic movements.

Gwelo, S. Rhodesia. T. W. STEPHENS, F.R.C.S.Ed.

Three Cases of Agranulocytosis

In view of the report by Drs. Librach and Cronin of a case of primary agranulocytic angina (*Journal*, Dec. 14, 1946, p. 897), I am prompted to publish notes of three cases of agranulocytosis in British prisoners of war in Singapore.

CASE REPORTS

Case 1.—A medical officer of the I.M.S.—a personal friend—aged about 35 was in good health, so far as the diet and conditions allowed, at the time of the onset of his illness. He had suffered from "painful feet" the previous year, which had been greatly relieved by injections of "nicamide." In April, 1944, a further series of injections of nicamide had been given for an increase in these pains. On May 7, 1944, he had noticed tenderness of his jaws and teeth, and during the night had had several attacks of shivering, followed by sweats. Next morning he was admitted to hospital. The temperature was 103° F. (39.4° C.) and it continued at about this level until May 13. The only physical finding on admission, apart from the pyrexia, was tenderness and slight enlargement of the neck glands. Repeated blood slides were negative for malaria parasites. The white blood cell counts were as follows:

Date	Total per c.mm.	N. Polymorphs %	Lymphocytes %	Mononuclear %	Myelocytes %	Myeloblasts %	Other Cells %
May 8	4,600	2	76	12	—	—	10
„ 10	3,600	0	89	6	5	—	—
„ 11	2,900	7	71	8	6	2	6
„ 13	8,400	32	58	5	5	—	—
„ 16	12,800	41	30	3	17	2	7

The tenderness of the jaws developed into severe pain, which necessitated repeated injections of morphine for the next 48 hours. On May 9 he was given 4 ml. of liver extract and 10 ml. of "pentnucleotide." Next day these doses were repeated. Three sloughs had now appeared on the gums. A course of sulphapyridine was started, 5 g. being given on the first day and 3 g. the next day. No further liver, pentnucleotide, or sulphapyridine was given, as the blood counts showed a gradual improvement. Fragments of alveolar margin separated during his convalescence, which was otherwise uneventful.

Case 2.—An assistant surgeon aged about 35 was taken ill with fever and general malaise on April 6, 1944. Between April 6 and 13 repeated blood slides proved negative for malaria parasites, stools were negative for amoebae, and a blood count was normal. When seen on April 13, the eighth day of illness, he presented a flushed dry skin, suffusion of the eyes, injection of the throat, and a temperature of 104° F. (40° C.). There were several small superficial crusted sores on his legs, buttocks, and hands, and a moderate degree of axillary and inguinal adenitis. The white blood cell counts were as follows:

Date	Total per c.mm.	N. Polymorphs %	Lymphocytes %	Mononuclear %	Myelocytes %	Myeloblasts %	Other Cells %
April 13	3,000	23	71	4		—	2
„ 14	3,200	5	86	8		—	1
„ 16	2,400	10	81	8	1	—	—
„ 18	4,200	38	51	6	5	—	—
„ 20	9,000	77	19	2		—	2
„ 24	13,000	77	—	—		—	—
„ 26	11,000	66	—	—		—	—
May 12	5,200	66	—	—		—	—

The pyrexia continued at a high level for some days after sulphapyridine treatment was started on April 15, 18 g. being given in six days. The pyrexia did not settle finally until May 12.

Case 3.—A staff-sergeant aged about 35 had had an area of eczema on the left leg for 2½ years. He noticed that the lesion was spreading, and reported for treatment on March 25, 1945. On April 10 he developed a pyrexia of 100° F. (37.8° C.) and complained of pain at the site of the eczema. Routine blood slides were negative for malaria parasites. I saw him the next day. His temperature had risen without remission to 104° F. (40° C.). He was very cheerful and mentally alert. In the patch of eczema on the left lower leg were three small scabs which were tender to pressure. The inguinal glands on that side were slightly tender and enlarged. The white blood cell counts were as follows:

Date	Total per c.mm.	N. Polymorphs %	Lymphocytes %	Mononuclear %	Myelocytes %	Myeloblasts %	Other Cells %
April 10	3,200	1	89	—	10	—	—
„ 12	2,000	14	70	2	14	—	—
„ 13	1,800	40	39	—		—	—
„ 16	3,800	59	33	—	8	—	—

On April 11 treatment with sulphapyridine was started, 22 g. being given by April 14. Pentnucleotide was not available, and the only specific drug, sodium nucleinate, was exhausted after injections of 5 ml. and 3 ml. on successive days. The fever gradually abated and was normal by April 17, when there were signs of necrosis of the skin, fluctuation under the skin of the eczematous area, and lymphangitis spreading up the leg and thigh. He was transferred to our surgical colleagues, who then assisted his return to health.

DISCUSSION

Many cases of agranulocytosis can be attributed to recognized poisons—organic, inorganic, and bacterial. Various other causes are cited as being responsible, including nutritional deficiency. The latter was a common factor to all three cases, and infection was a common factor to Cases 2 and 3. Despite the thousands of cases of uncomplicated nutritional deficiency which were seen, Case 1 was the only example of agranulocytosis, and I feel inclined to regard it as one of primary agranulocytosis.

An annotation in the *Journal* of Dec. 14, 1946 (p. 905), gives a brief résumé of the treatment of agranulocytosis. No wholehearted support is given to any particular method of stimulating leucopoiesis. As no certain line of treatment is available for this grave condition, the physician in charge feels bound to use nucleic acid in some form and liver extract; penicillin or one of the sulphonamides is given to counteract the infection which follows in the course of the disease. When infection appears to be the causative factor, these latter drugs take prior place in treatment.

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Reviews

OLD AGE

The Care of the Aged (*Geriatrics*). By Malford W. Thewlis, M.D. Fifth edition. (Pp. 500; 65 illustrations. 40s.) London: Henry Kimpton. 1946.

Dr. Thewlis approaches the problem of the treatment and care of old people in a practical way. He realizes that prompt attention to what may appear, in younger persons, to be trivial conditions will, in old persons, prevent them from developing rapidly into serious, and even untreatable, illness. In his detailed chapters on treatment Dr. Thewlis emphasizes that the old respond well provided that treatment is well planned and undertaken early. It is important, too, that physicians should appreciate the difference between the normal physiological processes associated with an ageing person and those changes which are evidence of senility, a process which "displays the infirmities of the aged."

While functional changes due to senescence are inevitable, they are no more peculiar than are those changes that occur when an infant develops into a mature adult. The recognition of this fact leads the author to the natural conclusion that it is important for anyone who has medical charge of old persons to make sure that they are encouraged to continue a normal and active life for as long as they are physically or mentally able. The old enjoy working and taking a full part in life, and they have shown that they are capable of a valuable contribution to their country's wealth; they should therefore be encouraged to this end. That much can be done to delay or prevent what are often considered the natural concomitants of old age Dr. Thewlis gives ample proof. A study of his wise appreciation of the difficulties, both mental and physical, of old age will do much to improve the lot of the aged in all walks of life, particularly his contention that the problems of geriatrics are those of medicine generally and not those of a special separate branch.

AMULREE.

PSYCHO-ANALYSIS OF CHILDREN

The Psycho-Analytical Treatment of Children. By Anna Freud. Technical Lectures and Essays. Parts I and II translated from the German by Nancy Procter-Gregg. (Pp. 98. 10s. 6d.) London: Imago Publishing Co., Ltd. 1946.

These collected essays of Anna Freud are of a highly technical nature, but none the less interesting and welcome. The first part consists of four lectures, now belatedly published in this country since they did not previously find favour with British analysts, in whose eyes the theories and work of Mrs. Melanie Klein found more acceptance. Miss Freud considers Mrs. Klein's play technique too objective, leaving too much to the interpretations of the analyst. Her own technique consists of establishing an alliance with the child in the introductory phase of treatment, if necessary against the parents, whose good will she must yet retain, and assuring the young patient that the "devil" which is within him and which he consciously recognizes can be exorcized with the help of the analyst. The latter may have to identify herself with all the patient's tastes and moods, and become not only interesting but useful to him, even to the extent of protecting him from punishment for his misdeeds. The transference situation having once been established the patient can then be required to surrender all his secrets. This is helped by the "game" of interpreting dreams —not only those of the night but day dreams as well—which often take the form or can be made to take the form of a serial story. Free associations are difficult to obtain from the child, though short series may sometimes be forthcoming, but the play technique is not considered to be equivalent to the free association of the adult. Moreover the child, unlike the adult, does not go through a transference neurosis, since in the nature of things it cannot reproduce and live through its love situations as can the grown-up. For these reasons child analysis does not throw much light on the problems of adult neuroses which are concerned with the very early years of life, since the means of exploring the repressed memories belonging to the era of the child's life before the acquisition of speech are not available. The adult, once the roots of the neurosis are disclosed, can readjust his life if he wishes on his own initiative, but the child cannot do this, and he therefore requires the help of the analyst to educate him and construct his character as well as to do what he can to modify the environment of the child so as to make his adjustment easier.

These preliminary lectures are the basis for the second and third parts of the book dealing with the theory of child analysis and the indications for it. The latter, the author thinks, are concerned with abnormalities of development rather than with frank clinical neurotic illnesses, and she points out that we know all too little about these faults of development and that the gaps in our knowledge can be filled only by painstaking analyses of individual children. Students of child psychiatry who are not members of the psycho-analytical school should not be put off by the technical presentation of lectures delivered to psycho-analysts, for a careful perusal of them will provide much which is both interesting and instructive.

R. G. GORDON.

AN X-RAY PRIMER

The Osseous System. A Handbook of Roentgen Diagnosis. By Vincent W. Archer, M.D. (Pp. 320; illustrated. $5.50 or 33s.) Chicago: The Year Book Publishers. London: H. K. Lewis and Co.

The preface of this book begins with the statement that it is "written for and is dedicated to the occasional radiographer." From the text it is evident that this means not a technician but the doctor who, without being a radiological consultant, is called upon at times to attempt *x*-ray diagnosis. As the author says, the book is a primer rather than an encyclopaedia, and the text is sketchy. It is extensively illustrated, with 150 plates comprising 300 to 400 illustrations. The volume might be regarded as an unusually well annotated *x*-ray atlas. The technique of radiography is not discussed. The illustrations are varied and cover the field well considering the scope of the work, but in some cases the double transposition back to the negative has resulted in loss of essential detail.

The book has four sections—introductory, skeletal injuries, bone diseases in children, and bone diseases in adults. Of these the section on injuries will be found the most useful, and a wide variety of fractures and diseases are described. The section on bone diseases is arranged not on a pathological basis but with reference to the salient radiological feature. An excellent index makes it easy to refer to any particular disease in the text. This should be a useful handbook for both clinician and radiologist—to the latter chiefly because of the admirable illustrations of many unusual conditions.

S. COCHRANE SHANKS.

LECTURES ON SCHIZOPHRENIA

The Biology of Schizophrenia. By R. G. Hoskins, Ph.D., M.D. (Pp. 192. 15s.) London: Chapman and Hall. 1946.

This book is an extended version of the Salmon lectures given last year by Dr. Hoskins. He is the Director of Research at the Worcester State Hospital, where over the past twenty years and more a large amount of work has been done on disturbances of bodily function in schizophrenia. These lectures summarize the work and forecast the trend of future research. Positive findings have not been lacking; they are practically all of the statistical type—that is, schizophrenics as a whole differ from normal persons to a significant degee in a great number of measurements. There are suggestions of deficiency in most endocrine functions—thyroid, adrenal, pituitary, and gonad. Treatment with various glandular preparations has been tried, with very disappointing results. There are differences in basal metabolic rate, in metabolism of sugar and glutathione, and also in the circulatory system, as shown in blood pressure, pulse rate, and circulation rate. But there is no qualitative difference between the schizophrenics and normal persons.

In this respect Dr. Hoskins and his co-workers have been singularly unfortunate. It may be remembered that Gjessing, in Norway, has found in schizophrenics with circularly recurring phases remarkable disturbances of nitrogen metabolism, to a large extent controlled with thyroid; and that Hemphill and Reiss, in this country, have found specific pathological changes

in the seminiferous tubules in quite early cases of schizophrenia. The work in America has led to no coherent theoretical interpretation; we are left with a jigsaw puzzle as apparently meaningless as ever. The one general finding, which repeats itself over a large number of functions, is that schizophrenics are less reactive than the normal; they can even stand much higher levels of physiological stress. One test, which involved breathing warmed moist oxygen, caused collapse in a quarter of the normal controls but was survived by the schizophrenics without notable distress.

Dr. Hoskins alienates the reader by devoting two out of his three lectures to general considerations without much relevance or interest and by a style which is stilted, pompous, and sometimes absurd: "It is a well-known apparent paradox that preceding acrimony enhances the vividness of connubial empathy." The book's principal fault is that figures and tables are generally eschewed; for these the worker, who might otherwise have found it invaluable as a convenient source of reference, must turn to the original papers given in the bibliography. A disappointing inconclusiveness pervades this work.

ELIOT SLATER.

BACTERIAL ADAPTATION

The Chemical Kinetics of the Bacterial Cell. By C. N. Hinshelwood, F.R.S. (Pp. 284; 79 figures and one plate. 20s.) Oxford: Clarendon Press. 1946.

This is a rarity among scientific works, for it is neither a textbook nor a comprehensive monograph. It is a reflective book—the author himself calls it an essay—in which he has brought together certain concepts of physical chemistry and selected data (mostly his own) on bacterial growth and adaptation in order, as he says, to see what the composition looks like. The adaptation of bacteria to drugs and to new sources of nutriment is of such intrinsic interest for the study of cell processes, apart from its medical importance, that the reflections of a distinguished physical chemist who has been applying the methods and concepts of his own subject to it for some ten years are something of an event. The author regards adaptation of bacterial cells as an automatic response to an altered environment; changed reaction velocities, resulting from the inhibition of one or more enzymic processes, lead to the establishment of new enzyme balances, either in the sense that the proportion of an inhibited enzyme to other enzymes is altered or that alternative enzymic routes, which in the unadapted cell were relatively unimportant, come to play a major role. These ideas are applied quantitatively and with relatively simple mathematical treatment, to such phenomena as lag, growth rate, reversion, and cross adaptation. The influence of natural selection, though it is not regarded as the primary factor, must be superimposed upon other adaptive mechanisms.

Underlying these ideas is an original conception of how enzymes increase in amount in the growing cell; by analogy with some inorganic catalytic reactions it is suggested that enzymes increase their substance by removing suitable protein fragments from substrate molecules, leaving residues which act as intermediates in further enzymic reactions, thus: enzyme+substrate=expanded enzyme+intermediate. The initiation of this process is thought to be due to the attraction which an established protein pattern must exert on protein fragments of like constitution, just as a crystal facilitates crystallization from a solution by providing a lattice on which fresh molecules can orient themselves. This conception of an autosynthetic process is illuminating from several points of view: it obviously links up with the ideas of Fildes and Woods on what have come to be called "metabolic antagonists"; also established protein patterns are seen to be the inheritance which daughter cells receive from their parent. The book abounds in suggestive ideas, and tribute must be paid to the skill and economy with which the author has presented his reflections; one reader at least has derived both aesthetic pleasure and intellectual excitement from its perusal.

H. R. ING.

A Primer for Diabetic Patients (8th edition, W. B. Saunders, 9s.), by Russell M. Wilder, M.D., F.A.C.P., contains the substance of the instruction given to patients in the diabetic school of the Mayo Clinic. A list of questions to test the patient's knowledge follows each chapter

BOOKS RECEIVED

[*Review is not precluded by notice here of books recently received*]

A Synopsis of Anaesthesia. By J. Alfred Lee, M.R.C.S., L.R.C.P., M.M.S.A., D.A. (Pp. 254. 12s. 6d.) London: Simpkin Marshall. 1947.

Designed as a summary of current teaching and practice for the student, house-man, and practitioner. Includes chapters on the use of curare, complications of anaesthesia, and shock.

Biochemistry of Cancer. By J. P. Greenstein, Ph.D. (Pp. 389. $7.80.) New York: Academic Press. 1947.

Includes sections on the induction of tumours, attempts at control of tumour induction and of tumour growth, and the properties of tumours.

Radiology for Medical Students. By F. J. Hodges, M.D., I. Lampe, M.D., and J. F. Holt, M.D. (Pp. 424. 37s. 6d.) London: H. K. Lewis. 1947.

An American outline of the use of *x* rays for diagnosis and therapy; intended for medical students; many skiagrams reproduced.

Diagnostic Neuro-Chirurgical. By J. Guillaume and J. Sigwald. (Pp. 457. 500 francs.) Paris: Presses Universitaires. 1947.

After discussing the anatomy and physiology of the brain the authors describe the various cerebral neoplasms. Chapters on the investigation of the brain and spinal cord follow.

The Anatomy of the Nervous System. 8th ed. By S. W. Ranson, M.D., Ph.D., revised by S. L. Clark, M.D., Ph.D. (Pp. 532. 32s. 6d.) London: W. B. Saunders. 1947.

This profusely illustrated American textbook has been rewritten in parts and new material added; gross descriptive anatomy is now included in one section.

Dimensions of Personality. By H. J. Eysenck, Ph.D., *et al.* (Pp. 308. 25s.) London: Kegan Paul, Trench, Trubner. 1947.

A team of psychologists and psychiatrists has examined 10,000 normal and neurotic subjects in an endeavour to define the dimensions of the personality by means of quantitative procedures.

An Integrated Practice of Medicine. By H. T. Hyman, M.D., 4 vols. and index. (Pp. 4,131. £12 10s.) London: W. B. Saunders. 1946.

This American work is designed for the general practitioner. Includes new colour photographs and 318 tables of differential diagnosis.

The Rhesus Factor. By G. Fulton Roberts, M.A., M.B. (Pp. 47. 3s. 6d.) London: William Heinemann Medical Books. 1947.

An account in simple terms of the rhesus factor, with illustrative case histories and a chapter on the treatment of its effects.

Introduction à la Criminologie. 2nd ed. Vol. I. By Dr. E. de Greeff. (Pp. 414. No price.) Brussels: Duculot. 1947.

After a chapter on the criminal's environment the author discusses his anatomy, physiology, and personality. There is a concluding chapter on homicide.

A Psychology of Growth. By B. I. Beverly, M.D. (Pp. 235. 12s. 6d.) London: McGraw-Hill Book Company. 1947.

An account of mental development from infancy to adolescence; intended primarily for the instruction of nurses.

Ego, Hunger and Aggression. By F. S. Perls, M.D. (Pp. 273. 12s. 6d.) London: George Allen and Unwin. 1947.

The author, a practising psycho-analyst, criticizes orthodox psychoanalysis and introduces semantics and holism. Intended for general practitioners as well as psychiatrists.

Gynaecological and Obstetrical Pathology. 2nd ed. By E. Novak, A.B., M.D., F.A.C.S. (Pp. 570. 37s. 6d.) Philadelphia and London: W. B. Saunders. 1947.

The author has revised the text in this edition and added over 100 new illustrations, some in colour.

Diseases of the Skin. 5th ed. By J. H. Sequeira, M.D., F.R.C.P., F.R.C.S., J. T. Ingram, M.D., F.R.C.P., and R. T. Brain, M.D., F.R.C.P. (Pp. 782. 63s.) London: J. and A. Churchill. 1947.

This edition includes new material on chemotherapy, industrial dermatoses, and tropical diseases. Many illustrations, some in colour.

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VAGINAL PLASTIC OPERATIONS

Prolapse of the uterus and vaginal walls is so common that it is fortunate that the results of its surgical treatment are, on the whole, satisfactory. Plastic operations on the vaginal wall date back to 1831, when they were first suggested by Marshall Hall, of London, but the Manchester school—A. Donald, W. E. Fothergill, and their followers—has played a leading part in the development of present-day surgical procedures for the cure of genital prolapse. Many modifications of the "Manchester operation" are practised, but all follow the same fundamental principle of strengthening the natural supports "from below." It can be applied to every case of prolapse irrespective of degree and type, and a cure rate of over 95% is recorded both in this country (Fletcher Shaw[1]) and in the U.S.A. (Maier and Thudium,[2] and Gordon[3]). However, it is not so successful in the hands of all surgeons, and individual skill, judgment, and experience count much when the end results are assessed. The Manchester operation has never found elsewhere such general favour as it has in the North Country, and its enthusiastic advocates have sometimes suggested that this is not always the fault of the operation itself. In America, in particular, various other procedures such as the Watkins interposition operation and vaginal hysterectomy are preferred, especially for gross degrees of cystocele and of uterine prolapse.

Vaginal hysterectomy is an operation of considerable antiquity—apparently performed as long ago as the second century A.D.—and procidentia was its indication in some of the earliest recorded cases.[4] That it has a place in the treatment of uterine prolapse would now be admitted by nearly all gynaecologists, though the importance of the place might be disputed. Wilfred Shaw, in this issue of the *Journal*, expresses a preference for it in cases of severe prolapse in post-menopausal women, and also when the uterus is diseased as well as displaced. Provided there is no uterine disease, many would restrict the use of vaginal hysterectomy to those cases in which the pelvic pouches of peritoneum lie low, and those in which the uterus remains small and its descent is associated with inversion of the vaginal vault. Complete prolapse of the uterus is not common, and in many cases the degree of descent is less than appears at first sight, the protruding mass being mostly an oedematous, hypertrophied, and elongated cervix. For such the need for vaginal hysterectomy is open to question. Gordon[3] has recently recorded 26 consecutive cases of third-degree uterine prolapse successfully treated by the Manchester operation.

The traditional objection to removal of the uterus is that it removes the "keystone from the arch," and that this is followed by prolapse of the vaginal vault, which then becomes exceedingly difficult to correct. If this is to be avoided the supports of the upper vagina must be strengthened during the course of the operation. In vaginal hysterectomy by the clamp method[4] this is not done, but the good results claimed may be due to the fibrosis which follows when the tissues at the vault heal by secondary intention. In the Mayo technique the cardinal ligaments are brought together to form a strong roof. Some stitch the utero-sacral ligaments to the pubo-cervical fascia in front. Wilfred Shaw suggests attaching the anterior leaf of peritoneum and the upper broad ligament pedicles to the "post-urethral ligament" to provide a better support for the bladder. Recurrent prolapse after vaginal hysterectomy, however, is more often enterocele than cystocele, and obliteration of any hernia of the pouch of Douglas is perhaps the more important step in the operation.

One of the symptoms of cystocele and urethrocele and one which is the most difficult to cure is "stress incontinence" of urine—a descriptive term coined by Sir Eardley Holland. All sorts of plastic operations on the tissues deep to the anterior vaginal wall are carried out with the object of tightening urethral sphincters and of supporting the bladder base and urethra and of restoring them to normal position, but in only about 60–80% of cases are they completely successful (Studdiford[5] and Aldridge[6]). The most difficult cases are often those in which the amount of cystocele is negligible. The result of anterior colporrhaphy may be anatomically perfect, yet bladder control remains impaired; indeed sometimes it appears to be worse. The treatment of this distressing symptom remains a problem, mainly because the anatomy and physiology of the female urethra and bladder neck and the mechanism of micturition are not understood.

Wilfred Shaw now gives a new description of the arrangement of fascia and ligaments deep to the anterior vaginal wall and includes new names for anatomical features which, as he points out, must be familiar to many gynaecologists. The value of this may depend ultimately on the significance of the fibromuscular fascia beneath the urethra which he calls the post-urethral ligament, and on whether by suturing this to the uterus it is possible to cure more cases of stress incontinence. Shaw's technique appears to offer a means of elongating the urethra and for putting the internal meatus as far back in the pelvis as possible. *X*-ray visualization of the normal urethra and bladder suggests that this is anatomically sounder than attempts to buttress the urethra up to the back of the symphysis pubis.

The complexities of the problem are illustrated by the fact that whereas Shaw describes the post-urethral ligament as stretching between the two inferior pubic rami, and emphasizes that this pubic attachment should not be

[1] *Amer. J. Obstet. Gynec.*, 1933, **26**, 667.
[2] Ibid., 1932. **24** 248.
[3] Ibid., 1946, **52** 228.
[4] Kennedy, J. W., and Campbell, A. D., *Vaginal Hysterectomy*. 1942. F. A. Davis, Philadelphia.
[5] *Amer. J. Obstet. Gynec.*, 1945, **50**, 119.
[6] Ibid., 1946, **51**, 299.

disturbed, Kennedy,[7] who describes an involuntary urethral sphincter and a voluntary "muscle of micturition" in this area, insists on the necessity for separating any adhesions between the peri-urethral tissues and the pelvic bones if stress incontinence is to be cured. He is supported by Counsellor,[8] who cured 26 consecutive cases of urethral incontinence by the Kennedy operation. Again, in the "fascial sling" operation of Aldridge[9] the tissues at the side of the urethra are deliberately separated from the pubic rami in order to bring down the fascial strips; yet so far there is general agreement that this operation and others similar in type usually restore urethral control when all other measures have failed. The insertion of fascial and muscle transplants deep to the anterior vaginal wall has developed gradually during the course of about forty years. The object is to support the urethra and bladder neck with healthy tissues from another site rather than with the local tissues, which may be overstretched, denervated, and damaged irretrievably. Pieces of gracilis, pyramidalis, levator ani, and bulbocavernosus muscles, and of fascia lata, have all been used. The operation increasingly practised to-day is one whose origin can be traced back to Goebell,[10] who in 1910 turned down the pyramidalis muscles and attached them to the neck of the bladder. Of the subsequent modifications an important one was introduced by Stoeckel,[11] who combined the operation with a repair of the vaginal wall. The technique mostly used now is that of Aldridge,[9] and in this strips of the oblique muscles of the abdominal wall are passed behind the symphysis pubis to form a sling round the urethra, the latter being further supported by anterior colporrhaphy. A few prefer not to open the vaginal wall but to pass the strips from above after dissection of the space of Retzius. Operations of this kind have, as yet, had only a limited trial, but they promise well. It is unwise, however, to make too early a claim for a cure of urethral incontinence by any operation. Relapse of symptoms within a few months of an apparent cure is common, and an interval of not less than two years between treatment and the assessment of the result is desirable.

For stress incontinence, as for uterine and vaginal prolapse, many operative procedures are available, and each surgeon tends naturally to adopt the one with which he is most familiar and, if need be, to modify it to suit individual cases. There is always a danger, however, of loyalty to one operation leading to prejudice. It is becoming increasingly clear that cases of prolapse vary considerably, not only in type but in aetiology. The same is almost certainly true for urethral sphincter incompetence. An "all purpose" operation is not the best for all cases, and "the most successful surgeon in the cure of genital prolapse will be he who, with a wide knowledge of all the methods at his command, chooses the one which will be best suited in individual cases" (Gray Ward[12]). Wilfred Shaw's important contribution to the subject will be widely studied and will induce many gynaecologists to review their own procedures in the light of what he says.

[7] *Amer. J. Obstet. Gynec.*, 1937, **34**, 576; 1946, **52**, 206.
[8] Ibid., 1943, **45**, 479.
[9] Ibid., 1942, **44**, 398.
[10] *Z. Gynäk. Urol.*, 1910, **2**, 187.
[11] *Zbl. Gynäk.*, 1917, **41**, 11.
[12] *J. Obstet. Gynaec. Brit. Emp.*, 1936, **43**, 667.

HEALTH EDUCATION

The ordinary citizen is slow to associate education with health. He accepts schooling as a matter of course to fit him for membership of a literate community, and technical and professional education as a means of earning a livelihood; he is prepared for arduous lessons in order to acquire some incidental accomplishment, such as playing a piano or driving a car. But he has an idea that such health knowledge as he needs "comes natural," though health is a prime condition of success in all these other ventures. He is usually content with his state of being not-ill; should he fall below the level of not-illness—well, what is the medical profession for? The term "positive health" is of recent use, and to many people means little or nothing. There is also squeamishness on this subject. Many matters connected with health are thought to be too indelicate for mention in polite company, not the sort of thing for education. Only a few years ago most of the national newspapers, which very closely reflect the conventional proprieties, declined advertisements which advised people to wash their hands after defaecation. It was not until 1942 that venereal disease was mentioned, except allusively, in a broadcast.

The war gave point and urgency to health education, and also accustomed people to methods of mass publicity which in other days would have offended or merely amused as many as they informed. The Central Council for Health Education, a very forthright body, came on the scene like a brisk housekeeper entering a shut-up room, opening the windows and vigorously dispelling the dust and cobwebs. Every instrument in the publicity orchestra—the phrase is that of the Public Relations Officer of the Ministry of Health—was used to get health facts and counsel across to the public: the film, with the trailer after the news reel, the leaflet, the poster, articles and advertisements in the Press, lectures, pictorial exhibitions, and, most wide-ranging of all in its appeal, the broadcast. The campaign for immunization against diphtheria was an example of well-directed teaching towards the prevention of one of the principal killing diseases of childhood, and it illustrated, too, how excellently central and local efforts could be combined. Another method widely adopted during the war was the Press conference. The periodical conferences held by the Chief Medical Officer of the Ministry of Health, when forty or fifty Press representatives would gather round the table to hear his commentary and to ask questions, were of great value in making the public acquainted with the facts of the public health or the epidemiological situation, getting precautionary measures accepted, and nipping false rumours in the bud. There was the usual "hand-out" of documents, so that the journalist could be sure of his facts, but the method did enable him to put his individual style into a subject which presently became as "live" as politics. The Press conference has been adopted by many health and social organizations, such as U.N.R.R.A., and generally with success. Propaganda, however, is not quite the same thing as education. To educate a man it is necessary to do more than jolt him out of his daydreams. The brief exhortation or appeal needs to be supplemented by a patient campaign of

enlightenment, carried on not by journalists or comic artists or publicity experts but by such people as health officers, sanitary inspectors, health visitors, school nurses and teachers, and members of the medical profession, all of whom in their quiet ways can help to transform into a settled habit the passing reaction of the public to the propaganda they have heard and seen.

Instruction in matters of health, which wartime experience showed to be an essential service, has yet many fields in which to begin its work or to consolidate its position. Three directions may be mentioned in which it has not yet been overworked. Two of them were referred to by Sir Andrew Davidson, Chief Medical Officer of the Department of Health for Scotland, in an address at the opening of the Summer School of the Scottish Council for Health Education. In the first place, more attention might be given to health instruction during that critical period in the life of a youth when he leaves school and enters employment. This change of surroundings and occupation is often accompanied by decline in health and minor sickness, partly no doubt the result of maladjustment. Something might be done to impress on parents the need for special home care at such a period, on employers the importance of a proper working environment, and on the young people themselves certain health rules and precautions. Another direction in which more might be done is the education of older people, even of old people, for the ageing process has its risks and stresses, and counsel is needed as much at one end of life as at the other. There is one other field in which the facilities commanded by health education might be used, and that is to prepare people for the doctor even at a time when there is no sign that they will need him. The doctor undergoes a long training to enable him presently to meet his patient, but nothing is done to prepare the potential patient to meet his doctor. A little instruction from this point of view might help to create the " good patient " ; it might break down in advance the reserve which during illness often delays the doctor's efforts and the patient's recovery. It might also do something to dispel preconceived ideas and prejudices in the patient's mind.

METHYLENE BLUE AND THE CHEMOTHERAPY OF SCRUB TYPHUS

Methylene blue has long been known to have a slight chemotherapeutic action against such widely differing organisms as trypanosomes, malarial plasmodia, the gonococcus, and diphtheria bacillus. Methylene blue, in fact, was the starting-point from which plasmoquine or, as it was known during the war, pamaquine, was evolved. In 1936 Otto and Schofer[1] found that methylene blue had some action against murine typhus infections in mice, a finding later confirmed by Kikuth and Schilling[2] in experimental murine typhus in guinea-pigs. The action of methylene blue has been further studied by McLimans and Grant[3] in infections due to the rickettsia of scrub typhus, *Rickettsia tsutsugamushi* (=*R. orientalis*). When methylene blue was added to the diet to the extent of 0.2%, ninety-six hours after inoculation, it reduced the mortality to 30–40%, as contrasted with a 90–100% mortality in the untreated controls. If, in addition, the mice were exposed to an atmosphere containing 50% of oxygen the mortality of the treated mice was reduced to from 20–30%.

In order to compare the curative effects of *p*-aminobenzoic acid and methylene blue with oxygen, mice were inoculated intraperitoneally with *R. tsutsugamushi* and after varying intervals therapy was instituted, the methylene blue and *p*-aminobenzoic acid being both added to the diet to the extent of 0.4%. While the methylene blue with oxygen inhalation invariably saved a higher percentage of mice than *p*-aminobenzoic acid, it is noteworthy that when therapy was delayed for more than 120 hours after infection *p*-aminobenzoic acid was quite ineffective, but methylene blue and oxygen still had an appreciable effect. Even when the concentration of *p*-aminobenzoic acid in the diet was increased to 1% it was always less efficient than methylene blue and oxygen.

In the treatment of scrub typhus in man methylene blue alone has so far proved ineffectual (Steele *et al.*[4]), but in view of the well-established function of methylene blue as a catalyst of numerous enzyme reactions and as a carrier of oxygen, studies of the action of this drug in other rickettsial and virus infections may well be of considerable interest. It will be remembered that more than twenty years ago Gordon[5] demonstrated that vaccinia and variola viruses are very readily inactivated by an oxidizing agent such as potassium permanganate, a clue to the chemotherapy of virus diseases which up till now has not been pursued.

REITER'S SYNDROME

The syndrome consisting of polyarthritis, urethritis, and conjunctivitis, originally described by Reiter in 1916, is perhaps not yet entitled to be known as Reiter's disease, since its aetiology remains obscure, and it is consequently not known to be a single entity. Cases have recently been reported in the *Journal* by Jackson,[6] Wrigley,[7] and Baxter,[8] while several correspondents[9-11] have discussed its possible relationship to bacillary dysentery. The association between these two conditions seems to be far from constant, and the evidence as a whole does not support the belief that Reiter's syndrome has any consistent connexion with intestinal disease. The resemblance to gonorrhoea is striking only in the distribution of the lesions; all tests for gonococcal infection give negative results, and neither sulphonamides nor penicillin are curative. The disease runs a long febrile course, its different manifestations often appearing successively and the arthritis migrating from one joint to another. It is apparently confined to young adult males and is not considered to be venereal in origin. No explanation of this age and sex distribution can be offered.

In the absence of any demonstrable causative bacterium it has been supposed that the disease is due to a virus, and Harkness[12] claims to have demonstrated inclusion bodies in material from the urethra and conjunctiva. Also incriminated are the so-called " pleuropneumonia-like " organisms, which have so long been denied the dignity of proper nomenclature. Although responsible for two specific animal diseases—bovine pleuropneumonia and contagious agalactia of sheep—these organisms have not been fully identified as the cause of any human disease, though they

[1] *Arb. Staatsinst. exp. Therap.*, 1936, **33**, 73.
[2] *Zbl. Bakt.*, 1944, **6**, 239.
[3] *Science*, 1947, **105**, 181.
[4] Steele, J. M., McLimans, W. F., Grant, C. W., and Tullis, J. L., " Studies on Tsutsugamushi Disease (Scrub Typhus). (V) The Effect of Methylthionine Chloride (Methylene Blue) on Tsutsugamushi Disease in Man." 1946. Rep. No. 5, *J. Naval Med. Res. Instit. Bethesda. Md.*
[5] " Studies of the Viruses of Vaccinia and Variola." 1925. Med. Res. Cncl. Sp. Rep. Ser. No. 98. H.M.S.O., London.
[6] *British Medical Journal*, 1946, **2**, 197.
[7] Ibid. 1946, **2**, 199.
[8] Ibid., 1946, **2**, 858.
[9] Ibid., 1946, **2**, 275.
[10] Ibid., 1946, **2**, 309.
[11] Ibid., 1946, **2**, 403.
[12] *Brit. J. vener. Dis.*, 1945, **21**, 93.

exist in the human body. Their extreme pleomorphism and the special techniques required for their study are obstacles to ready recognition, and perhaps much remains to be discovered about their activities in relation to human pathology. It may be recalled in passing that Swift and Brown[13] claimed to have cultivated these organisms from joint fluid in cases of rheumatic fever. The part they play in disease of the genital tract is uncertain; their frequent presence in cases of urethritis, gonococcal and other, is lessened in significance by their demonstration in the same situation in normal subjects. A contribution to the study of Reiter's syndrome from this point of view by R. R. Willcox, G. M. Findlay, and A. Henderson-Begg will be found at page 483 of this issue. These authors point not only to the somewhat equivocal evidence based on the examination of human material but to the existence of conjunctivitis and arthritis due to pleuropneumonia-like organisms in animals, including rats and mice, as encouraging the further search for such organisms in cases of Reiter's syndrome. They investigated two cases, inoculating mice with blood and joint fluid, with no further result than the production of a non-transmissible arthritis in a single mouse. Their other line of argument is therapeutic: pleuropneumonia-like organisms are sensitive to gold salts, and these two patients were accordingly treated with myocrisin. This appears to have had a very satisfactory effect, the lesions resolving and the sedimentation rate falling steadily. As the authors rightly indicate, this is no proof of a particular aetiology, since many drugs are active against more than one type of micro-organism. On the other hand, it is the result to be expected in accordance with their hypothesis, and in the interests both of further investigation and of successful therapy the effect of gold should certainly be observed in future cases.

ANAESTHESIA BY HYPNOSIS

Last year, just a century after James Esdaile's[14] successful use of mesmerism for surgical operations at the Hooghly Hospital, Calcutta, the exigencies of a prisoner-of-war hospital near Singapore led Sampimon and Woodruff[15] to try hypnosis as a substitute for more orthodox methods of anaesthesia. Supplies of anaesthetic agents were meagre and uncertain, and many casualties were likely to occur. It was decided to attempt the use of hypnosis in selected dental and surgical cases. Hypnosis was induced with the patient lying supine on a table. The method employed was that of convergence fatigue, the patient being instructed to fix his gaze upon the point of a pencil held at the minimum distance of distinct vision. This method originated with the physician James Braid during the early eighteen-forties, and it was he who named it hypnotism. His main purpose was to get patients into a suggestive state for the treatment of a variety of ailments—for example, rheumatic conditions and neuralgia—but on a few occasions Braid painlessly extracted teeth from entranced patients.

Among Sampimon and Woodruff's patients there were 23 for dental extractions. Other successful cases included the removal of nails and the incision and drainage of suppurating wounds. It was found easier to induce hypnosis in reasonably intelligent patients than in mental defectives, but beyond this they could discern no general principles which would indicate in advance whether a given patient was likely to prove a good subject. An aspect of hypnosis stressed by these authors was the importance of verbal assurance by the hypnotist during the course of the hypnotic sleep that neither operative nor post-operative pain would be felt, nor would the operation be remembered. They claim that in two cases in which the attempt to induce hypnosis failed the mere suggestion of anaesthesia enabled the operation to be performed. In another case of failure the subject was subsequently found to be deaf and so had not heard many of the suggestions made to him. When post-operative pain occurred the authors traced it to the omission of appropriate suggestions or to waking the patient too soon (that is, less than ten minutes) after the final suggestions had been made.

In the middle of the seventeenth century the Jesuit Athanasius Kircher[16] described how a hen, bound by her feet and laid on a pavement until she ceased to struggle, could then be kept motionless by drawing a line in chalk away from her eye and straight in front of her. From that day to this the possibility of inducing a state of trance, however well attested, has been generally regarded with distrust. It was so in the case of John Elliotson, who in 1838 was forced to resign the Chair of Medicine at London University because he practised mesmerism. It was so in the case of Esdaile, though his work was vouched for by an officially appointed committee of investigation. The sincerity of Sampimon and Woodruff is unquestioned. Their experiences are at variance with the everyday practice of anaesthesia and the usual reaction of the human organism to pain. The time may be due for a thorough review of the subject of hypnosis and suggestibility in relation to surgery. Sampimon and Woodruff press for such an investigation, for much good might come of it. They suggest that the work might best be undertaken by a surgeon, or better still, we believe, an anaesthetist, collaborating with a psychiatrist.

WATTS EDEN TRAVELLING FELLOWSHIPS

Dr. Thomas Watts Eden, who died on Sept. 22, 1946, set aside under the terms of his will two sums, each of £10,000 free of duty, to found travelling fellowships. These two fellowships will be created after the death of his widow. One is to encourage the study of obstetrics and gynaecology, the other the study of infancy and early childhood in health and disease. For thirty years or more Dr. Watts Eden was one of the foremost obstetricians and gynaecologists in London hospital and consulting practice. He distrusted that narrow specialism which he called "the key-hole view" of medicine and often stressed the need for study of the healthy infant and child, and particularly in relation to the results of antenatal and postnatal care. The conditions under which these two new fellowships are to be founded reflect his views. In due course the funds set aside by his trustees will be transferred to the Royal College of Physicians and to the Royal College of Obstetricians and Gynaecologists. The Presidents and senior officers of the Colleges, with others, are to be the judges making the awards. Candidates will be men or women graduates, whether members of the College concerned or not, of not less than two years' standing of any approved university in the British Empire and Commonwealth. Each fellowship will be for a period not exceeding three years. The awards will be made according to the academic progress of a candidate before graduating and in the light also of his or her attainments during the postgraduate period. Ten years after the first award the conditions may be varied.

On Monday of last week Lord Moran was once again elected President of the Royal College of Physicians.

[13] *Science*, 1939, **89**, 271.
[14] *Mesmerism in India, and its practical application in Surgery and Medicine*, 1846, Longman, London.
[15] *Med. J. Austral.*, 1946, **1**, 393.
[16] *Physiologia Kircheriana*, 1680, Walsberg, Amsterdam, 90.

MEDICAL HISTORY IN POSTAGE STAMPS

The medical profession is much given to the cultivation of hobbies. It is, therefore, rather surprising that the medical associations of philately should have received such little attention or have been pursued in secret. The exhibition illustrative of "Medical History in Postage Stamps," held on April 2 at the Historical Section of the Royal Society of Medicine, under the presidency of Sir Arthur MacNalty, appears to have been the first of its kind in this country. This exhibition was arranged by Mr. N. M. Matheson and Mr. W. J. Bishop and was accompanied by a demonstration on the epidiascope and a running commentary.

Until comparatively recent times stamps of medical interest were few, but within the last twenty years designs illustrative of almost every aspect of medicine have multiplied, and their number and range are sufficient to give scope to the most ardent collector. Medical stamps may be divided into two broad classes: (*a*) those bearing portraits of medical men, and (*b*) those depicting medical scenes, such as hospitals, nursing, medical congresses, etc. There are many special health, Red Cross, child welfare, and tuberculosis stamps; on some the only distinguishing feature is the Red Cross or the tuberculosis symbol.

The stamps which will probably most interest the medical man are those bearing portraits of medical and scientific worthies. The first medical man to be depicted on a postage stamp appears to have been F. Espejo (1746–99)—Ecuador, 1899 issue. In 1923 France began the well-known series commemorating Pasteur, but the first medical man of eminence to be so honoured was Boerhaave (Netherlands, 1928). After this date the number of portrait stamps increased rapidly, and they may be divided into those of practising medical men, those who qualified but abandoned medicine, those who studied but never qualified, and workers in ancillary fields. Among regular practitioners we find Vesalius, Paré, Haller, Semmelweis, Camper, Purkinje, Ramon y Cajal, and Reed. No stamp is known commemorating the Father of Medicine, but Imhotep, Apollo, Aesculapius, and Hygeia have been honoured. Some fortunate individuals appear on the stamps of more than one country: Van Swieten has been so honoured by the Netherlands and Austria, Koch by Germany and Danzig, while Pierre and Marie Curie appear on several stamps. Harvey, Sydenham, Hunter, or Jenner will not be found on any stamp. Indeed it was not until Sir Wilfred Grenfell was depicted on a Newfoundland stamp of 1941 that any British medical man had been commemorated in this way. Some countries have issued stamps portraying whole schools of medicine—e.g., the nine worthies of the Vienna school issued by Austria in 1937. Vesalius, Dodoens, and Van Helmont appear in a recent series from Belgium. Among "truants" from medicine we have such diverse figures as Sun Yat-sen, Clemenceau, Chekhov (third from left in bottom row), and Schiller, and among those who studied but never qualified we find William Henry Harrison, ninth President of the United States—a pupil of Benjamin Rush. Ancillary sciences are represented by such names as Roentgen, Berzelius, Ampère, Volta, Galvani, and Ling. Florence Nightingale appears on French and Belgian stamps, and Jean Henri Dunant, the founder of the Red Cross, on Belgian and Swiss stamps; and the German stamp shown on the left of the bottom row records ten years' child welfare work.

As Matheson and Bishop showed, the "documentation" of a collection of medical stamps would provide a searching exercise for the student of medical history. The value of such a collection for purposes of teaching and illustration is obvious, and perhaps this comparatively new branch of collecting will attract many doctors who have not previously come under the spell of either medical history or philately.

We are indebted to Mr. W. J. Bishop for permission to reproduce the stamps illustrated in this article.

POLISH FACULTY OF MEDICINE IN EDINBURGH

The first medical school in the United States was started at Philadelphia in 1765 by William Shippen and John Morgan, graduates of the Medical Faculty of Edinburgh. At the beginning of the 19th century Andrew Sniadecki made use of his observations when a medical student at Edinburgh under Duncan, Monro *tertius*, and Gregory to found at Vilna the first modern medical department in a Polish university. But although a Danish student two hundred years ago remarked that at Edinburgh one could see wandering together students from places as far apart as America, France, Portugal, and Russia, the existence in the Scottish capital of a separate foreign school of medicine is something unique not only in this city but anywhere.

The Polish Faculty of Medicine in Edinburgh, now to be disbanded, was formed in 1941 as a result of an agreement signed by Sir Thomas Holland, then Vice-Chancellor and Principal of Edinburgh University, and Dr. Stanislaw Kot, Minister of the Interior in the exiled Polish Government in London. The Polish Army which escaped from France in 1940 was largely concentrated in Scotland, and arrangements were made for Polish medical officers to obtain instruction in British military medical methods by attending the military hospital at Edinburgh, and in certain cases working in the medical departments of the university. To overcome the language difficulty Lieut.-Col. Crew, commander of the military hospital and in peacetime professor of genetics at Edinburgh, conceived the idea of forming a postgraduate course for Poles, conducted by Polish teachers. This idea broadened into the establishment of a complete Polish school of medicine to train Poles in this country as doctors. Accordingly a Polish Faculty of Medicine was formally inaugurated at an impressive ceremony in the M'Ewan Hall on March 22, 1941.

For five years Poles came to Edinburgh from the battlefields of Europe—from Norway to Monte Cassino, from Falaise to Kapelle—from the underground army inside occupied Poland, and from Russia to study medicine in an institution which was their own though their country was overrun. They used the old anatomy department building in Bristo Place and practicals were also held in the Royal (Dick) Veterinary College; clinical studies were carried out in the Royal Infirmary, the Simpson Maternity, and city fever hospitals, and the specially established Paderewski Hospital. The Dean of the Faculty was Dr. Antoni Jurasz, later succeeded by Dr. Tadeusz Rogalski, and in addition to the Polish lecturers the following professors of Edinburgh University took part in the teaching of the students: Sydney Smith, T. J. Mackie, Stanley Davidson, A. M. Drennan, and R. W. Johnstone. The staff consisted altogether of 54 persons—including 9 professors, 9 senior lecturers, 21 senior assistants and 8 junior assistants.

The number of students at the school in the last year of its existence was 241, about one-third of them being women. The Polish students each year elected representatives to the Edinburgh University Students' Representative Council, and one was made assistant secretary of this body. The Poles took part in various student activities and had their own students' association and a hostel, although most stayed in "digs." Scottish students and members of the Edinburgh University teaching staff proposed at one time that the Polish school should continue in peace and an equivalent body be organized in Poland, although the Goodenough Committee had reported that the clinical facilities at Edinburgh were insufficient to support the two British medical schools there. There is no doubt, however, that the Polish Faculty of Medicine in Edinburgh University represents a successful experiment in international medical co-operation which might well be followed in other spheres.

MENTAL HEALTH AND THE OFFENDER

Dr. J. R. Rees's Clarke Hall Lecture

The seventh Clarke Hall Lecture on "Mental Health and the Offender" was delivered by Dr. J. R. Rees at Lincoln's Inn on March 26, with Mr. Justice Birkett presiding. Dr. Rees said that in the past the psychiatrist had been regarded as concerned in the main with those grosser mental disorders, the psychoses, which, however, were but a small part of the whole field of psychiatric interest. As an example, although it was admittedly from a somewhat selected group, out of 225,000 men and women in the Army during the recent war who were referred to psychiatric out-patient clinics, only 3.5% were cases of psychosis; 27% of the total were cases of mental dullness or defect, and 57% were cases of neurosis or of psychopathic personality with lifelong emotional and social instability. Crime was the outward manifestation of some disorder in personality and character, however this might have been caused, and all antisocial conduct, whether it was noticed merely in the nursery or came eventually to the courts, was evidence of some psychological failure in the conduct of life. There was no effect without cause, and it was vitally important that an attempt at diagnosis should be made before treatment was undertaken. Whether the condition was regarded as a disease or as a character disorder, neither implied something for which the individual must be assumed not to be responsible. There was a certain individual responsibility for common physical illnesses, such as the cold and a multitude of other minor conditions, and the responsibility for emotional disorders and upsets was exactly parallel.

Psychiatrists in Court

In Army courts-martial the excellent principle had been established, Dr. Rees continued, that psychiatrists were not to be allowed to be called for the defence. Their reports were always to be given to the president of the court before the consideration of sentence. He wished that psychiatrists, and indeed all medical men, could be regarded in the light of experts giving their advice to the court, and not, as too often happened, being brought in by one side or the other merely to support the efforts of counsel.

Far too frequently when a medical report was demanded it had to be provided by someone who was not very skilled in the psychiatric approach. It was essential that at every remand home and in every prison there should be psychiatrists and psychologists with the necessary special training and experience to investigate, report on, and interpret the material referred to them. Up to the present the average doctor had had but little training in this field, though many senior men had acquired great wisdom through experience. Whether in tackling the medical or the sociological problems concerned with mental health, a team composed of those people who had special interest in, and knowledge of, the behaviour of human beings would always be desirable. The sociologist, the psychiatrist, the penologist, and the psychologist had equal status in the team. He thought they were beginning to realize in medicine that the persistence of the old, unjustified sense of superiority of the doctor over his technically trained colleagues in allied fields did nothing but hinder progress.

What was needed, in his view, was the ability to recognize the kind of human beings who had committed crime; the attitude to the offender should be to hate the thing he had done but not to hate him, just as doctors should think of the man or woman who was ill, even if this meant thinking a little less of the illness from which he or she suffered. There was an impression among some in the legal profession that their colleagues in medicine were sentimentalists while they themselves were realists. Very often the reverse was the truth. The doctor, being used to disease, suffering, and the less pleasant aspects of life and death, should be able to see through the circumstances surrounding some particular crime to the essential problem, and once the facts were established, which normally

had nothing to do with him, he should be realistic in his assessment of the quality and make-up of the individual and what might best be done with him with a view to making him a healthy citizen.

REVISED PENSIONS

There are still about 28,000 men of the 1914 world war receiving pensions for the loss of one or more limbs. For the recent war the number is something over 10,000. These pensions have previously been calculated on a schedule of assessment for certain specified injuries laid down in the Royal Warrant. During the discussions at the Committee Stage of the National Insurance (Industrial Injuries) Act, in November, 1945, it was suggested that a committee might be set up jointly by the Minister of National Insurance and the Minister of Pensions to review the existing schedule of assessments and to consider whether any changes should be made as a preliminary to its common use in both Service and industrial cases. The committee which was subsequently set up had six medical members[1] and was presided over by His Honour Judge E. Hancock.

The degree of disablement in any case is in most instances settled by a medical board. There are a group of cases, however, which lend themselves to more general assessment—namely, those cases involving the loss of a limb or part of a limb. Provided there is an exact description of the injury the compensation or pension can be fixed by reference to a schedule. The committee has considered these injuries and certain minor injuries, ranging from the loss of a toe or finger downwards. In most instances the assessment which was previously in force remains unaltered, but the committee has recommended a few changes. In future the rates for the loss of a hand or arm will be the same irrespective of whether it is the right or left hand. Thus, in future, the loss of four fingers of one hand will be assessed at 50%, as against 40% for the right hand and 30% for the left hand, which is the present assessment. The assessment for amputation of the hip-joint will be raised to 90%, and there are other minor changes. Any increases of pensions resulting from adoption of the new schedule will have effect from the first pension pay day in April. It is estimated that about 7,000 pensioners will benefit from the new arrangements and the increased cost to the Exchequer will be slightly over £100,000 a year. The Minister of Pensions has accepted the committee's recommendations, and so far as industrial cases are concerned the committee's findings have been accepted in principle by the Minister of National Insurance and will be used as a basis for the regulations to be made under the National Insurance (Industrial Injuries) Act.

GUY'S HOSPITAL DENTAL SCHOOL

The first annual clinical meeting since 1939 was held at Guy's Hospital Dental School on March 30, when a full programme of demonstrations of modern dental work was carried through by members of the staff. Special interest attached to demonstrations of apicectomy under nitrous oxide anaesthesia, the operative treatment of prognathism, the facilitation of extractions using local analgesia, and, in the children's department, orthodontic cases under treatment. It was stated that the school is growing so rapidly and the number of patients undergoing treatment is so large—more than 13,000 new patients were treated during 1946—that plans are in preparation for rebuilding the department as soon as conditions allow. There are 400 students in training. Hitherto admission has been restricted to male students, but from September next women students will be accepted. In 1946 a professor of dental medicine was appointed by the University of London; he is to be assisted by a team of assistants and is to carry out research into various aspects of dental disease. A proportion of the cost of this research is being borne by the Nuffield Foundation. Another feature of Guy's is a department of preventive dentistry, which aims to bring home to the public a knowledge of the means of prevention of diseases of teeth and gums. The school is the first in the country to undertake the training of women to assist general dental practitioners in their chairside work.

[1] A. L. Eyre-Brook; R. H. Fleming; H. E. Griffiths; Sir Gordon Gordon-Taylor; E. R. A. Merewether; and Miss Gladys Ward.

MENTAL AFTER-CARE

Dr. Henry Yellowlees, the chairman of council, presiding at the annual meeting of the Mental After Care Association, said that all the activities of the Association had been kept up to standard. They were of a practical nature, dealing with adults recovering from nervous or mental illness and with the prevention of such illness by early care. The Association had never been concerned to organize or arrange lectures on mental illness, but it had co-operated with other bodies and had given financial help whenever possible, as well as advice in individual cases when referred by clinics. It was desired to develop one of the Association's homes as a special rehabilitation centre, also to expand the work and become a national association with branches instead of being a London association. Dr. W. Gordon Masefield paid a tribute to the work of the Association. As a medical superintendent he had found that one of the most difficult problems to solve concerned the patient who was ready to leave the mental hospital and who needed chiefly to have his self-confidence restored, and here in the convalescent stage of mental illness a short period in a home such as the Association provided was of inestimable value.

Preparations and Appliances

STERNAL TROCAR AND CANNULA

Mr. HAMILTON BAILEY, London, W.1, writes: With this latest model of a sternal trocar and cannula it is impossible to enter the mediastinum. The instrument can be inserted into the bone marrow under local anaesthesia without any special experience. It is my belief that this method of administering parenteral fluids has a large field of usefulness, for I am constantly encountering cases where either all the available

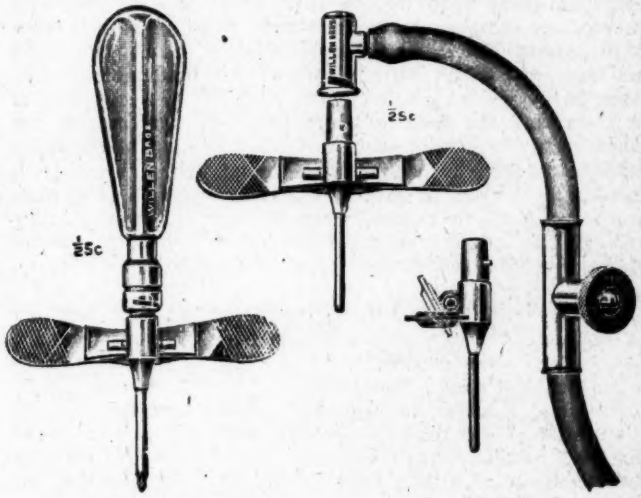

FIG. A FIG. B

veins have been utilized, or, for other reasons, cannulization of a vein is hazardous. Cannulization of the sternal bone marrow can be accomplished swiftly under any conditions, including an indifferent light.

After a number of experiments and minor alterations, we (I include Mr. P. Regen, of Messrs. Willen Bros. 44, New Cavendish Street, W.1) have now perfected the instrument and have made it foolproof.

The Secretary of State for Scotland has approved increases of salary ranging from £30 to £75 per annum for matrons and deputy matrons of mental hospitals recommended by the Wheatley Committee. In the case of chief male nurses and deputy chief male nurses the increase is one of 20s. per week. The increases take effect from July 1, 1946, the date on which increases for the other grades of mental nurses came into effect. Registered general nurses who train in mental hospitals will now get £115 in their first year and £130 in their second year of training, instead of £90 and £100, together with free board and lodging. Men and women with war service who are or who become qualified mental nurses may now get credit for all or part of that service.

Reports of Societies

LOCAL PENICILLIN IN THE MOUTH

At a meeting of the Section of Odontology of the Royal Society of Medicine on March 24, with Prof. H. STOBIE in the chair, a discussion took place on penicillin used locally in the mouth.

Dr. ALEXANDER MACGREGOR said that the action of penicillin *in vivo*, in the mouth at all events, appeared to be greatest within the first quarter of an hour. The speed of diffusion of penicillin was an advantage in the odontological field, because the drug was able to reach areas like gum pockets quickly, but at the same time it had the disadvantage that the penicillin was rapidly lost. He had employed penicillin pastilles in the hope of getting a slower action. Other methods of administration were penicillin powder, which was of value for insufflating cavities; cream, as to the advantages of which he was uncertain; and the most recent method of using cones with a fatty base. It was essential to have a base which would not interfere with the healing of a socket, and whether the cones would prove successful over a long series he could not as yet say.

One of the main indications for local penicillin in the mouth was Vincent's disease. In the acute form of this condition penicillin was better than any other treatment; in the chronic form it was unavailing. There was usually some focus of infection, such as an impacted wisdom tooth, which must be eliminated or recurrence was likely to take place. The acute stage was controlled within four or five days, and it was striking to see the improvement in the patient's condition coincide with the disappearance first of the spirochaetes and afterwards of the fusiform organisms. The results of local penicillin in ulcers of the mouth had been very mixed. Some of the so-called dyspeptic ulcers in the mouth appeared to be associated with streptococci and pneumococci and others with mixed oral types of organisms. Some of the cases cleared up quite well and did not recur, but others did not improve. In extractions, operations on cysts, and gingivectomies penicillin was of value in obtaining a clean field in which to work. In carrying out gingivectomy he did not pack; instead of packing, he employed massage as soon as possible. He found that with penicillin pastilles the amount of pain subsequently appeared to be very much reduced. In chronic gingivitis penicillin was of little value, but in certain cases it did bring about a temporary relief of the condition, which gave time for other treatment to be started.

Concerning the pastilles themselves, Dr. MacGregor said that he had used a pastille with a gelatin base. The disadvantage was its high water content; penicillin lost its stability rapidly in contact with water. The pastilles were not very stable, and unless used quickly the penicillin content dropped and the administration was rendered useless. But there was no doubt that such pastilles when fresh were very much better than the commercial ones with a hard base. He considered that the modern hard-base pastilles were not completely safe. With the gelatin base the stomatitis, which made its appearance with other forms of lozenges, was not encountered. If odontologists had gelatin pastilles made up in their own dispensaries with fresh penicillin, he thought they would be surprised at the results.

Desiring to learn what kind of spread was to be expected with penicillin pastilles in the mouth, he had carried out an experiment in which the penicillin was replaced by methylene blue, and, taking 50 subjects, he worked out a system of marks for the extent and degree of staining. The proportions for the different areas were:

	Anterior Pillar of Fauces	Uvula	Tonsils or Tonsillar Fossa	Pharynx
After 5 minutes ..	59	47	45	11
„ 15 „ ..	88	82	73	24

The majority of the cases showed no staining of the pharynx at all.

Finally he pointed out that local penicillin was an adjunct to oral surgery, not a substitute for it; that bacteriological control was essential, otherwise various organisms might come to the fore and give rise to penicillinase, which would abort the effect of the penicillin; and that if penicillin was given at all, it should be given in sufficient dosage straight away. Even though organisms were eliminated it did not mean that they would not come back again. It had been noticed that the elimination of streptococci from the throats of carriers was quite effective so long as the penicillin was being given, but that the organisms returned when the treatment was stopped.

In reply to questions by Prof. H. F. HUMPHREYS and others, Mr. D. A. LONG, who was associated with this research on the bacteriological side, said that directly coliform organisms made their appearance the local value of penicillin ceased. The appearance of the coliform organisms did not seem to bear any relation to the form of treatment. It might have been thought that if coliform organisms were forthcoming on the second or third day or later with local penicillin they would be seen correspondingly earlier with systemic penicillin, but that was not so. He had carried out some investigations on patients having penicillin systemically, from 100,000 up to one million units a day, and it was not until half a million units was reached, or, more strikingly, one million units was approached, that the organisms tended to disappear from the mouth. In cases in which a really severe infection had spread to the lining of the mouth the dosage should be between half a million and one million to produce the maximum effect. For the treatment of such cases systemic penicillin was vastly superior, largely because of its action over twenty-four hours, the action of local penicillin being limited to the patient's waking hours.

TREATMENT OF TOXIC GOITRE

A meeting of the Section of Endocrinology of the Royal Society of Medicine was held on March 26, Mr. L. R. BROSTER presiding, for discussion on the treatment of toxic goitre.

The Argument for Surgery

Mr. J. E. PIERCY said that primary toxic goitre offered no difficulty in diagnosis. Thiouracil was invaluable in breaking down the degree of thyrotoxicosis to safety level, and in the average case it eliminated the necessity for stage operations. But thiouracil increased the technical difficulties of operation by reason of the increased vascularity and added 20 or 25 minutes to operation time. It was the secondary nodular type of gland which was difficult to recognize. Here there were few signs and symptoms, the patient possibly complaining of fatigue and palpitation on exercise. This type of case appeared to go on unsatisfactorily below toxicity and culminated in cardiac damage. The importance of these slow-going, minimal-degree toxic cases should be appreciated. Out of 1,000 nodular goitres 220 had developed auricular fibrillation by the time they were admitted for operation. The procedure called for close co-operation between physician and surgeon and a study of the individual case; there could be no uniformity. Cases needing most consideration were those with mental derangement associated with thyrotoxicosis.

Even in the case of the severely toxic patient and the patient with complications he thought that a return to normal or near normal could be expected. Thyrotoxicosis commonly occurred in the highly strung, sensitive type of patient, and although the thyroid balance might be regained by operation, the constitutional make-up was unaltered. It was generally recognized that the nursing profession was a particularly exacting and arduous one, but of 65 nurses operated on in his series all had returned to full duty—an indication of the effectiveness of the operation. In surgery not only was the thyrotoxicosis dealt with rapidly, but the goitre also. Auricular fibrillation or the risk of it in the future was practically removed. A bad scar was unusual, and such scar as there was should not give rise to pressure. In comparing the results of operation with those of thiouracil treatment the long strain on the patient during treatment by this preparation must be borne in mind, as well as the ever-present fear of complications. His argument for surgery was based on the conviction that it offered a more rapid cure than thiouracil, and with no greater mortality.

Thiouracil Treatment

Dr. W. R. TROTTER discussed the treatment of toxic goitre by prolonged administration of thiouracil. If this drug was given to a patient with toxic goitre it would be possible to reduce or abolish the manifestations of thyrotoxicosis, but as there was no evidence that thiouracil had any permanent effect on the thyroid it was to be expected that if the drug was discontinued the symptoms would recur immediately, unless it should happen that in the meantime a natural remission had taken place. Reduction in the size of the goitre or amelioration of the exophthalmos was not to be expected. The practical utility of the drug would depend, first of all, on its ability to control the symptoms of thyrotoxicosis; secondly, on the frequency with which natural remission of the disease occurred; and, thirdly, on the extent of non-toxicity. If thiouracil was to supplement surgery as the standard treatment of toxic goitre it must be shown that it could control thyrotoxicosis as effectively as operation, and that it was no more dangerous. Most patients would prefer to swallow pills for a limited period rather than undergo an operation, but they would prefer an operation to the necessity for remaining under close medical supervision for the rest of their lives.

The control of thyrotoxicosis by thiouracil was achieved in practice, and all were familiar with the short results. Cases which were resistant and responded slowly were those which had had long periods of iodine therapy previously. The degree of control obtained was much the same as by thyroidectomy. As for the length of time during which the drug had to be administered before the patient reached natural remission, out of 29 cases, 7, owing to the return of thyrotoxicosis, had had to be put back on thiouracil after the treatment had been suspended. These must be considered as true recurrences of the disease, since the symptoms did not reappear immediately after the drug was stopped. The fact must be faced that at least 25% of cases were likely to relapse and require a further course of treatment after the first had been completed. Experience showed that a natural remission might be expected to set in within a year or two of the patient's first coming for treatment, and it was not yet known how curable these remissions might be. In some patients at least there was reasonable prospect of permanent remission. What was needed was some means of distinguishing the case in which remission would be obtained from the case which would show a persistent tendency to recur.

Toxicity of Thiouracil

Concerning the toxicity of the drug, the complications most common were the skin symptoms, drug fever, and leucopenia. For the most part these conditions were not much more than a nuisance and did not necessitate stopping the treatment. The proportion of cases in which treatment by thiouracil had to be abandoned on account of complications was not more than 18%. Agranulocytosis was a different matter. Its high death rate and unexpected onset made it an alarming condition. There were at present no means of preventing its onset, but a great deal could be done by alertness and promptitude in treatment to prevent it from being fatal.

In comparing this new agent with the well-established method of subtotal thyroidectomy two factors must be taken into account: the type of surgery and the type of case. Subtotal thyroidectomy could be an extremely difficult operation. Its safety depended not only on the skill but on the experience of the surgeon. By the time a surgeon had done several hundred such operations his mortality rate might be less than 1%, but many general surgeons did not have the opportunity of acquiring this degree of experience and their mortality was correspondingly higher. It followed that while thyroidectomy in the hands of an expert was as safe as treatment by thiouracil, thyroidectomy by surgeons without special experience was less safe. It seemed a fair conclusion that where a specialist surgeon was not available a physician might be well advised to treat all these cases with thiouracil in the expectation that by doing so he would save lives. When expert surgery was available then more discrimination between the two procedures might be exercised.

Dr. A. M. MUSSEY mentioned a series of 75 cases treated with thiouracil in three years and gave an account of his routine method. He had not found the exophthalmos much affected. Out of 7 cases with thyrotoxicosis associated with auricular fibrillation, rhythm had returned in 4 and in 3 there had been no change. He had treated pregnant women who had given birth to normal babies. Contraindications were: a preference expressed by the patient for surgery for cosmetic or other reasons; exertion of pressure by the gland; serious complications arising in the course of treatment; failure to control the disease without pushing the drug to dangerous limits; and lack of co-operation by the patient. Surgery had achieved its present status not without trials and errors, and not without casualties. By patience and perseverance an effective medical alternative had been evolved. The last word on the subject had not been spoken, and inquiry into new ways of dealing with the problem would continue.

The discussion was continued by Dr. LINNELL, who was surprised at the suggestion that only a minority of patients showed the nodular toxic type; in his experience the large majority were of that type. Every nodular goitre, whether toxic or not, should be removed. Mr. VAUGHAN HUDSON said that the use of thiouracil must be investigated under very well controlled conditions. Too often the results of the very specialist surgeon or specialist physician had been taken, but it was important to bear in mind the results, so far as they could be ascertained, of "random" surgeons and physicians. Major ROBERTSON spoke of favourable results with thiouracil. He had been fortunate in the absence of complications in spite of the fact that the initial dose he gave was higher than usual. Dr. CROOK spoke of the value of propyl thiouracil—a drug, he claimed, as safe to use as thyroid in myxoedema.

DISEASE IN OLD AGE

A meeting of the Medical Society of the L.C.C. Service was held on March 5 at St. John's Hospital, Battersea. The discussion was opened by Dr. TREVOR H. HOWELL.

Dr. Howell said that in 1900 there were 2½ million persons of pensionable age in the country. Now there were over 6 millions and the number was still growing. Little was known about disease in old age. We had advanced no further than Hippocrates, who wrote: "In old people occur dyspnoea, catarrhs accompanied by coughs, dysuria, pains in the joints, nephritis, vertigo, apoplexy, cachexia, pruritus of the whole body, insomnolence, defluxions of the bowels, the eyes, and the nose, dimness of sight, cataract, and dullness of hearing." The records of the Royal Hospital, Chelsea, showed the following figures for causes of admission to the infirmary between 1918 and 1943:

Bronchitis	14%	Influenza	8%
Old age, senility	12%	Arteriosclerosis ..	7%
Cardiac disease	10%	Digestive disorders ..	7%
Minor surgery, eye, E.N.T.	8%	C.N.S. diseases	6%

Rheumatic disease 6%

The diseases causing death in the aged were quite different in their order of frequency. They had changed somewhat since the use of sulphonamides became general. Pneumonia, formerly second on the list, now lay seventh. Heart failure was probably more common than before, since fewer patients died with acute infections; but more passed on to "secondary" heart failure after the disease had subsided. The Registrar-General's figures for the causes of death in approximately 250,000 persons over 65 in 1942 were roughly as follows:

Heart disease	30%	Bronchitis	8%
Cerebral vascular disease ..	14%	Old age	7%
Cancer	12%	Arteriosclerosis	5%

Pneumonia 3%

His own experience at Chelsea during the war led Dr. Howell to realize that deaths from pneumonia would be fewer if sulphonamides were given as early as possible, without waiting for clinical signs of consolidation. In a bronchitic old man pyrexia over 99° F. (37.2° C.) was the danger signal, not signs in the chest. Another advance was the use of injections of adrenaline for bronchial spasm. Such measures not only improved the prognosis of pneumonia, but also diminished the occurrence of subsequent cardiac failure.

Dr. Howell then drew up a list of conditions common in old age where the prognosis depended on the skill and interest of the medical attendant. Such conditions as bronchitis and pneumonia had already been mentioned; hemiplegia from cerebral thrombosis, chronic arthritis of all types, and normal old age could be greatly influenced by the doctor. Genito-urinary disease and cancer occupied a half-way house, for cure might often be obtained if the condition were discovered early enough. Senile dementia, the results of arterial thickening, and the digestive disorders of old age, on the other hand, were resistant to treatment. The essential motto was, "Spot the cases early and treat them quickly." Dr. Howell suggested that the aged and chronic sick needed the best doctors and the most skilful attention. In certain municipal hospitals in Essex and Middlesex this principle had been adopted. Statistics showed that out of every 100 old folk entering those hospitals, 40 died, 40 recovered and returned home, while 20 remained as "chronic sick."

Mr. J. R. M. WHIGHAM pointed out that in old people appendicitis often presented with atypical signs and that frequently it was only when the abdomen became distended and general peritonitis supervened that the diagnosis became clear. He suggested that diarrhoea in chronic cases, which was often due to carcinoma of the rectum, should be renamed constipation with overflow.

Mr. IAIN MATHESON gave some figures for the mortality following operation in patients over 70. His gross mortality in 169 major operations was 36.5%. He pointed out that a major operation in an old person, even if successful, frequently shortened the expectation of life. With regard to old people in general, he suggested that confinement to bed was often the last straw, and said that a lot of incontinence in old people confined to bed was due to a mixture of laziness and slight mental deterioration.

Dr. J. H. SIMMONS asked what was meant by senility, and suggested that a large number of cases so diagnosed proved to be due to avitaminosis, especially in old people living alone. Dr. B. GOTTLIEB said that he was getting good results in the treatment of pneumonia in chronic bronchitics with aerosol penicillin.

OPHTHALMOLOGICAL SOCIETY

ANNUAL CONGRESS AT GLASGOW

The 67th Annual Congress of the Ophthalmological Society of the United Kingdom was held at Glasgow University on March 27, 28, and 29. Prof. A. J. BALLANTYNE, the president, delivered an address of welcome to over a hundred members and to the visitors from abroad, in particular Dr. P. Merigot de Treigny (Paris), Dr. E. Godtfredsen (Denmark), Dr. J. Van Caneyt (Belgium), Prof. W. H. Melanowski, Madame Schiss-Wertheimer, and Madame Dallon.

De Senectute

The process of ageing as illustrated by familiar disorders met with in ophthalmic practice was the theme of Prof. Ballantyne's presidential address. He began by saying that "it all depends what you mean" by old age. If what was meant was gradual recession of bodily powers then old age was inevitable, but if it was intended to imply that certain particular disabilities were necessarily attendant upon advancing years the story was somewhat different and the outlook more hopeful. Many of the disabilities which in a former generation made people old at fifty had been cleared away, some of them as the result of a change in social habits. If old age meant a stooping gait, some increase of girth, greying hair, a little breathlessness on exertion, a less acute hearing, a less instant memory, then the ageing man, after the first shock of realizing that what he had said about his friends applied to himself, accepted the situation without any very sharp regret. After all, the whole of life was a process of growing old. Histologists and embryologists declared that ageing was a life-long process. Some would have it that the fundamental factor in the ageing process was dehydration, and this actually began before birth. These changes, Prof. Ballantyne pointed out, did not keep pace uniformly throughout the body; each part of the organism pursued its own career according to its individual time-table, and the chemical and physical factors concerned were so numerous and complex that it was to be expected that some minor circumstance might often upset the balance and precipitate premature degeneration. In the eye the principal changes regarded as senile were cataract and presbyopia. But opacities of the lens occurred at all ages, and senescence of the lens was not necessarily accompanied by opacity. Even when opacities began to appear, visual acuity might remain undisturbed. In the lens, as in other tissues, there were certain results of ageing which began in early life and over which the individual had no control, and to these must be added the further results due to accident. Prof. Ballantyne suggested that the doctor–patient relationship was of special value in the instance of the ophthalmologist and his ageing patient. To many people cataract had a sinister significance, and patients were grateful for the assurance that useful vision might be retained, and that even opacities of the lens might be regarded in the same category as greying hair and other harmless signs of growing old. He considered it not too much to predict that cataract might be prevented or so retarded that the lens would outlive the individual. Prof. Ballantyne concluded with some remarks on the social aspects of old age, on the modern science of geriatrics, and on the "age guidance specialist." Ophthalmologists, he said, could help their old patients to accept with courage a different pace of life. The secret of happiness in old age was congenial occupation, the preservation of a sense of progress, and a sense of one's own significance to family and friends. "The best contribution the older people can make is to cultivate the society and companionship of the young, and, avoiding patronage and superiority, to impart their experience, to offer kindly criticism, and, most important of all, to recognize their own limitations and to know when they are in the way."

Rhinology in Relation to Ophthalmology

This discussion was opened by Dr. J. MARSHALL, who dealt with the ophthalmological aspects of the subject, Mr. G. H. HOWELLS, describing the part played by the ear-nose-and-throat surgeon, and Dr. R. MCWHIRTER, who showed some admirable radiographs. The opening speakers had agreed not to discuss nasal sinusitis as a possible cause of retrobulbar neuritis and intra-ocular inflammation. The trend of the discussion was in favour of referring cases of orbital inflammation to the rhinologist. With his co-operation sulphonamide and penicillin therapy should be undertaken. It was preferable to drain into the nose an abscess arising in an infected sinus. If drainage through the orbit was indicated, then it was best to do this in a plane between the orbital periosteum and the bone and not to open the orbital fascia. The value of radiotherapy in the treatment of malignant neoplasms originating in the accessory nasal sinuses and invading the orbit was stressed and this treatment was preferred to surgical removal, particularly in the case of malignant neoplasms of the antrum.

For the exploration and removal of neoplasms deep in the orbit the relative merits of the transfrontal approach and the lateral orbital access by means of Krönlein's operation were briefly discussed. The former approach was indicated when the neoplasm had extended beyond the confines of the orbital cavity, the latter when it was certain that the neoplasm was benign. Opinion was more in favour of dacryocystorhinostomy for naso-lacrimal duct obstruction than of West's intranasal operation. Orbital and ocular injuries as a result of nasal sinus operations were mentioned—for example, penetration of the eye, orbital cellulitis, total ophthalmoplegia, and division of the optic nerve.

Many other papers of interest were keenly discussed, and a clinical meeting was arranged at the Glasgow Eye Infirmary.

The annual dinner of the Society was held in the hall of the Royal Faculty of Physicians and Surgeons. Sir Andrew Davidson proposed the toast of the Society and the President replied. Dr. S. Spence Meighan proposed the toast of the guests, and Dr. P. Merigot de Treigny replied. Sir Stewart Duke-Elder's speech about the President was an admirable survey of Prof. Ballantyne's qualities as a man and as an ophthalmologist of international repute.

PARENTS IN CONFERENCE

A conference of parents (in which, however, the fathers were numerically insignificant) was held at Caxton Hall, Westminster, on March 18 under the auspices of the Federation of Committees for the Moral Welfare of Children. Mrs. E. M. LOWE, J.P., presided, and two preliminary addresses were given by Dr. J. A. Hadfield, Lecturer in Mental Hygiene, University of London, and Dr. Doris Odlum.

"Treated as Mannikin"

Dr. HADFIELD spoke of the mental and emotional development of the child, reminding the conference that the child was a different person at different stages of life. The child, he said, was too often treated as a mannikin, but in fact the child of 2 was quite different from the child of 6, and he again from the child of 12. The child of from 4 to 7 was an independent, unsociable creature, filled with a first sense of achievement; from 9 to 10, and again in adolescence, he was a member of a "gang." At about 15 he entered upon a romantic phase, which was quite a different thing from the more sexual experience of 18. Dr. Hadfield accordingly warned parents not to regard as abnormal many manifestations in the development of their children which were perfectly normal to their age and only temporary. It was natural for a child of 2 to be self-willed and for a youth of 15 to fall romantically in love. If such phases were checked they would persist into the ensuing phase and trouble would be caused. He pleaded for freedom for the personality of the child and the inculcation of the only discipline which was worth while, namely, self-discipline. At least nine out of ten "don'ts" were quite unnecessary. The human infant had fewer fixed reflexes than any of the animals, and for that reason it was able to learn by experience.

Adoption of Children

Dr. DORIS ODLUM addressed herself to some of the practical problems which presented themselves to social workers. One of them was the question of adoption. Here no rule could be laid down; each case must be taken on its merits. There was a fundamental tie between child and mother, unique in human relationship, and the child was likely to be happiest in contact with the mother, even if it saw her fairly seldom. But where the mother—she was thinking more particularly of the illegitimate mother with few resources—was of low mentality or in poor health or did not want the child, adoption was the necessary recourse. Safeguards were needed in choosing foster-mothers, and it was better to be a little pessimistic than to be carried away by enthusiasm for adoption. Elderly people who had not themselves had children did not as a rule make good foster-parents. Care must be taken not to create an "only child" situation. It was important to acquaint the child from the start with the fact of its adoption; great psychological damage was done to the adolescent who learned for the first time that he or she had been adopted.

She next turned to the problem of enuresis. This had three origins: (1, the smallest group) emotional, due to some lack of adaptation to the environment which led to reversion to an infantile level; (2) lack of training; (3, the largest group) failure of development of reflex control owing to some physiological defect. It could not be known in how many children this control was delayed, because the majority of children never needed to pass water in the night at all, and so the lack of control was not suspected. In none of these three situations were the children blameworthy.

Speaking of sex difficulties Dr. Odlum said that it was almost incredible how early-Victorian was the average parent even in 1947. Parents still did not give their children anything at any age which could be called intelligible sex education. Very few mothers understood what menstruation signified or gave it any kind of biological value, and they still looked with horror at masturbation in the very young child, being ignorant of the fact that the great majority of children grew out of it as they grew out of other physical habits with the advent of external interests. She pleaded for a far greater knowledge, understanding, tolerance, and sympathy on the part of parents.

Correspondence

Penicillin Black Tongue and Penicillin Stomatitis

SIR,—The discussion of penicillin black tongue and penicillin stomatitis in your recent issues prompts me to record my own experiences, which clarify some aspects of the problem. I have observed both conditions in patients treated by the inhalation of nebulized aqueous solutions of high-potency "yellow" penicillin. On one occasion a black tongue was produced by peroral inhalation of four doses given 12-hourly, the total penicillin administered being less than 200,000 units. The patient was at the time taking 50 mg. of nicotinic acid daily as a routine supplement to the standard post-war diet to which the nation is committed. Although such cases are of rare occurrence they impel one to the opinion that the buccal conditions are neither due to avitaminosis induced by the inhibiting action of swallowed penicillin on the nicotinic-producing bacteria of the gut nor due to the nature of the base used in the manufacture of pastilles, but are caused primarily by the local action of penicillin itself. If black tongue represents a specific disturbance of the balance of the saprophytes of the mouth, it should be possible to influence it in many ways. The saprophytic flora at any point in the body can be regarded as the biological reflection of the chemical and physical factors obtaining there. When pastilles are taken over a protracted period, the chemical nature of their base becomes an important environmental factor. It follows therefore that although penicillin initiates the processes which terminate in black tongue it should be possible to control the sequence for better or for worse by modifying the composition of the base.—I am, etc.,

London, W.1. N. MUTCH.

Water and Salt Depletion

SIR,—I have read with great interest Dr. H. L. Marriott's authoritative and stimulating lectures on water and salt depletion (*Journal*, Feb. 15 and March 8 and 15, pp. 245, 285, and 328). During roughly the same period as when Dr. Marriott was conducting his researches, I was also serving in India and encountering the effects of salt depletion in men who were being referred on account of psychological symptoms. While I am unable to quote statistical details it was obvious that salt depletion was either an aggravating or a primary factor in many of these cases. The main effects of low osmotic pressure which Dr. Marriott quotes (p. 286)—namely, lassitude, apathy, weakness, headache, and giddiness—are all symptoms liable to crop up in neurotic conditions, and there is little doubt that the term "tropical neurasthenia" has been widely misused to cover the effects of salt depletion.

In his paper Dr. Marriott describes a vicious circle of events in salt depletion (Fig. 9, p. 287) in which gastric symptoms such as anorexia and vomiting further reduce the body's supply of salt, and I would like to point out another type of vicious circle which has certain psychiatric implications. Patients who had suffered from dysentery continued to have loose stools despite adequate drug therapy. The more outstanding cases often had a neurotic predisposition, but even when this factor was not distinguished the general effect of lowered morale, coupled with the more obvious symptoms of salt depletion, produced a fertile ground for the seeds of anxiety. Morbid preoccupation over their debility and special concern with the presenting symptom (diarrhoea) led to a functional prolongation of the diarrhoea and consequent increase of salt depletion. The results of simple reassurance, a little mild sedation, and salt often had gratifying results. These measures may perhaps be equally applicable in certain other bowel disturbances, irrespective of their exact origin.

Finally, there is one small point about which I would venture to disagree in part with Dr. Marriott. He mentions the lack of thirst for salt as opposed to thirst for water. The animals who make periodic visits to salt "licks" must have some biological urge in that direction. Further, I know from personal experience and from questioning others that in a state of salt depletion unsalted water tastes horribly insipid. This, of course, is not a positive appetite, but once realized does lead indirectly to awareness of lack of salt.—I am, etc.,

Haywards Heath. A. J. GALBRAITH.

Retrodisplaced Gravid Uterus

SIR,—Through your columns I should be grateful for the opportunity of making some observations on the letters referring to my paper (Feb. 1, p. 169) written by my two friends, Dr. M. Hamilton (March 15, p. 350) and Dr. J. A. Chalmers (March 22, p. 392).

Polak's figures quoted by me and those obtained at U.C.H. show that sterility and retrodisplacement of the uterus are associated. This point was made in my opening paragraph and has been kindly enlarged upon by Dr. Hamilton in his letter. What is not certain, however, is that the displacement in itself is the cause of the sterility. It is possible that there are other factors associated with the retrodisplacement which are responsible for the sterility and which are at present imperfectly understood. It is because of this that I have suggested that correction of the displacement in such cases should be left as the last method of treatment after all other treatments have failed.

I stated "that the incidence of abortion in patients with retrodisplaced gravid uteri is at least no higher than that for all pregnancies." The importance of the displacement as a cause of abortion has been overemphasized and is only likely to be a factor when it causes incarceration. These deductions were made on the figures obtained at U.C.H. and on those of Danforth and Galloway quoted by me. Dr. Hamilton, in his more logical manner, prefers to state that my figures "do not disprove the hypothesis that retrodisplacement (without incarceration) does not significantly predispose towards abortion." If the incidence of abortion (without incarceration) is not influenced by the position of the uterus then correction of the displacement is necessary only to avoid incarceration. I believe this applies to the primigravida and to the multipara, who may have had a previous abortion from a displaced uterus. Dr. Chalmers disagrees with me on this last point and attempts to show that two of the three cases quoted by me prove his point.

From the history of patient No. 39, Dr. Chalmers makes the deduction that the ventrosuspension operation was unsuccessful and that the first two unsuccessful pregnancies occurred in a retrodisplaced uterus. Is this not putting the cart before the horse? The ventrosuspension operation was carried out at a reputable London teaching hospital (not U.C.H.), and I am sure they would be as indignant at Dr. Chalmers's "reasonable" deduction as he would be in similar circumstances. In any event, supposing the operation was unsuccessful, does not the case show that conservative treatment is possible and that continuity of the abdominal wall can be maintained? I would prefer to regard this patient as an habitual aborter, with the uterus accommodating the pregnancy for a longer period on each successive occasion.

In case 42 abortion occurred 11 weeks after anteversion had been attained (not 9 weeks as stated by Dr. Chalmers). If circulatory factors dependent on the position of the uterus were the cause of the abortion as suggested, would the latent period be so long and would not abortion be much commoner than it is with incarceration when such factors are more likely to be active? Dr. Chalmers has misread me when he says that I point out that circulatory abnormalities may interfere with the imbedding of the ovum in a retrodisplaced uterus. I only quoted Barnett's observation on the subject. Indeed, Barnett says that abortion due to such factors usually occurs at 2½ months, not 23 weeks. Personally I prefer to regard and treat such patients as cases of habitual abortion, and I admit that I do not know the cause of the abortion in the majority of such cases.—I am, etc.,

London, W.1. H. H. FOURACRE BARNS.

Marrow Biopsy

SIR,—Prof. D. F. Cappell, Dr. H. E. Hutchison, and Dr. G. Harvey Smith (March 29, p. 403) call attention to the value of examination of specimens obtained from marrow by paraffin sections in addition to the usual smears. But their advocacy of a rather complicated and inevitably messy method of fixing the "mush" from the sternal puncture needle is surely out of date.

The Turkel trephine is little larger than the Salah needle, and it permits of the obtaining of a "sausage" of marrow as well as of the usual juice for making films. Essentially, it consists of an outer needle (with stylet), and a narrower inner one with a serrated end. The outer needle (with stylet in place) is pushed in until its tip sticks in the anterior lamella of the sternum. The stylet is then withdrawn and replaced by the inner (trephine-ended) needle (also with stylet in place). When the end of the inner needle is in contact with the bone, the stylet is withdrawn, and the inner needle is turned to and fro while slight pressure is exerted, until a sudden cessation of resistance indicates that the medullary cavity has been entered; then a few more half-turns will fill the end of the inner needle with marrow. Next, leaving the inner (trephine) needle in position, the outer needle is pushed onwards in the marrow cavity. The inner needle is withdrawn and its contents expelled into fixative. A syringe is attached to the outer needle and marrow juice obtained by suction.

In this way marrow tissue is obtained while films are not diluted by aspiration of as much marrow as Cappell, Hutchison, and Smith find necessary. In fact there is "at last the answer to the haematologist's prayer for a means of combining the advantages of sternal trephining with those of sternal puncture" (annotation, p. 419).—I am, etc.,

London, W.1. A. PINEY.

Intrathecal Penicillin in Cerebrospinal Fever

SIR,—In his article on "Medical Aspects of Penicillin Treatment" (March 8, p. 290) Dr. B. A. Young expresses a doubt as to the necessity for intrathecal penicillin in meningococcal meningitis and also a desire to know the practice of fever hospitals.

Speaking for the Park Hospital, I can say that the results obtained for many years with sulphonamides alone, especially sulphathiazole and sulphadiazine, have been so good that we consider intrathecal penicillin as an unnecessary complication in the routine treatment of these cases. Those who have had experience in the treatment of cerebrospinal fever in the past with meningococcal antitoxin have not forgotten the condition of patients receiving daily intrathecal injections of antitoxic serum, neither have they forgotten that often better results were obtained with intravenous administration alone. When they see the ease with which sulphonamide-treated patients now recover, they cannot help but view all return to unessential intrathecal medication as a retrograde step.

Moreover it is not sufficiently realized that the majority of the deaths from cerebrospinal fever at the present time occur in fulminant septicaemic cases, with or without adrenal haemorrhage and often with little or no evidence of suppurative meningitis. Intrathecal penicillin cannot help these patients. Intensive sulphathiazole treatment, combined with systemic penicillin for 24 hours, can save them. It is indeed a curious fact that since penicillin has become generally available the case mortality for cerebrospinal fever should have gone up. One can read in the introduction to the *Medical Annual* for 1946: "The limitations of penicillin are being recognized, but it is surprising to find that sulphonamides may be superior to penicillin in the treatment of meningococcal meningitis."

It has become the practice apparently in many hospitals to administer penicillin intrathecally at the first lumbar puncture to all patients suffering from a purulent meningitis, whether primary or secondary, and before a bacteriological examination. As at least 80% of all cases of primary suppurative meningitis are due to the meningococcus, this means that a large number of cases of cerebrospinal fever are receiving unnecessary intrathecal penicillin. This would not matter much if the injection was without danger. But even the purest penicillin, given with all precautions intrathecally, is often followed in infants and children by various reactions—twitchings, convulsions, apnoea, vomiting, and collapse. In very ill cases with concomitant septicaemia it is easy to understand that the reaction may turn the scales against the patient.

During the years 1944, 1945, and 1946 136 cases of cerebrospinal fever have been treated at the Park Hospital, and the case mortality for all ages, all degrees of severity, late and moribund cases included, has been 8.8%.

The value of intrathecal penicillin in suppurative meningitis, secondary to otitis media, infected sinuses, cranial injuries, etc.,

and also in primary suppurative meningitis due to the pneumococcus and *many* due to *H. influenzae* (Pfeiffer) is not questioned, but in meningococcal cases its superiority to oral and systemic sulphonamides has not been established, and its use is attended with unjustifiable risks.—I am, etc.,

London, S.E.13. L. J. M. LAURENT.

Epidemic Kerato-conjunctivitis

SIR,—The annotation on epidemic kerato-conjunctivitis (Jan. 25, p. 145) prompts me to report the common occurrence of K.P. in an outbreak among British personnel in Calcutta in the rainy season of 1945.

The usual history was of a sore eye 10 days after trauma occasioned by Rugby, soccer, or motor-cycling without goggles. Swelling of the upper lid and of the pre-auricular gland was present. Staining of the cornea with fluorescein developed a few days later, followed by K.P. in 20 out of 30 cases, sometimes with folds of Descemet's membrane and sometimes after the ciliary flush had subsided. The corneal picture bore a marked resemblance to the eye lesions of onchocerciasis, which, of course, was not involved. The K.P. was as often associated with the type of fine corneal lesion as with the disciform type, and was quite a feature in this epidemic.—I am, etc.,

Johannesburg. J. GRAHAM SCOTT.

Endocrine Receptors in Relation to Cancer

SIR,—There can be little doubt that a living cell is ready and willing to receive an endocrine stimulus just as in plants and animals the female is ready and willing to receive the male element. But I fail to see why Mr. T. C. Clare (March 22, p. 390) labels a cancer cell as degenerate and therefore lacking in an endocrine receptor. A cancer cell is not degenerate by a very long way—it is, unfortunately, young, active, and vigorous.

For many years there has been an idea that cancer arises from some fault in the endocrines, the cell receptors, or both, but prolonged observation and clinical experiment have failed to substantiate this theory, promising though it appeared to be.

We know that cellular division is the result of nuclear activity—the greater the nuclear activity, the more rapid the cell division. And here we must hark back to the very beginnings of the organism. An organism was originally a small bit of our planet cast off when the latter began to cool. We are of the earth, earthy. In the course of long years of evolution it adapted itself to surrounding influences, and ultimately man appeared. But just as in our parent, the earth, there are some atoms, such as uranium, which are not too stable, so man may have some cells of a like character—liable to burst into exaggerated nuclear activity at slight provocation. Lucky are the people who have not inherited these unstable cells!

I submit, then, that cancer is brought about by irritation whipping up the electrical phenomena known as nuclear activity in cells which happen to be unstable. If this be so, what then? The Ministry of Agriculture has forbidden the propagation of plants which are liable to disease—for instance, some varieties of potato. Breeders of animals and birds choose healthy parents. As this naturally is impossible in the human race, the predisposition to cancer will continue to be handed down.—I am, etc.,

Wigan. J. THOMSON SHIRLAW.

Amoebic Hepatitis

SIR,—During the last few months there have been admitted to my wards four cases of hitherto unsuspected amoebic hepatitis with abscess, two of them fatal. One gave a history of treatment with emetine in 1930 in India, and two others admitted to fleeting attacks of diarrhoea in the Far East, while the fourth assured me that he was the only soldier in the Middle East who had never had an attack of diarrhoea. A fifth case sent in for diagnosis for axillary glands was found to have a tender liver, and the sigmoidoscope revealed advanced amoebic ulceration of the bowel. This man had been in the Navy and had had attacks of diarrhoea on and off, but never enough to report sick.

As such a large part of the British Army served in "amoebic dysentery countries" in the late war, and as the original infection by the *Entamoeba histolytica* can be such a mild disease, it seems to me that such cases may become common during the next few years, and practitioners should keep a careful watch for them. Admittedly the signs and symptoms of early amoebiasis of the liver are indefinite and are not confirmable by laboratory tests. In a doubtful case, however, the improvement with emetine is dramatic if one is on the right track. Few diseases are more treatable in their early stages, but if not diagnosed in time disaster may easily follow.—I am, etc.,

Bristol. RICHARD C. CLARKE.

Arsenical Encephalopathy

SIR,—The case report by Drs. G. Hipps and R. Goldberg (March 8, p. 296) on a patient dying with arsenical encephalopathy calls for some comment. Their treatment was that advocated by Ransome *et al.* (1945)—i.e., the patient is sat up in a vertical position, receives calcium gluconate, calcium thiosulphate, vitamin C, intravenous glucose-saline, and is repeatedly lumbar-punctured. Stress is laid on the postural part of therapy in order to decompress the brain.

Whereas it is obviously difficult to be dogmatic in a condition which is rare and where spontaneous recoveries occur (mortality is estimated at 75%), the promise of British Anti-Lewisite (dubbed BAL by the Americans) appears to be considerable in reducing the mortality in arsenical encephalopathy. In a recent survey by the American Council on Pharmacy (1946) 44 out of 55 patients suffering from arsenical encephalopathy recovered after receiving BAL; of the 11 cases who died 5 were started on this treatment some 9–72 hours after coma had set in. Thus with early administration of BAL one may hope to reduce the mortality to less than 15%. The American Council recommends 3 mg./kg. four-hourly intramuscularly for two days, then four injections on the third day and two injections on the following days until the patient has completely recovered. They emphasize that BAL must be given early and in adequate concentration to be of use.

My own experience is confined to two patients, both of whom recovered with BAL as the principal therapeutic agent, although both were comatose when this treatment was begun. Incidentally the first patient was nursed flat on his back, the second sitting up. In view of the published results of the American Council it is considered that BAL should be the primary agent in treating patients with arsenical encephalopathy.—I am, etc.,

G. W. CSONKA.

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Electric Convulsion Therapy

SIR,—During the past nine months a new technique for the administration of oxygen and CO_2 throughout the convulsion has been used in the out-patient E.C.T. clinic at St. George's Hospital in an attempt to reduce the excessive cyanosis produced by the convulsion, with the resulting stress upon the cardiovascular system.

It has been our practice over many years to administer oxygen through a Hewett N_2O and O_2 mask at the conclusion of the convulsion, and in this way to cut short the period of cyanosis as much as possible. However, it was felt in the case of old patients (a number being over 70 years of age), and in plethoric and hyperpietic subjects and in those suffering a degree of cardiac insufficiency, that the less strain that could be placed upon the cardiovascular system the better. With this object in view, it was decided to administer oxygen throughout the convulsion. This at first sight may appear illogical in view of the supposed laryngeal spasm occurring at that time; in actual fact, however, this spasm seems to take on the characteristics of the general clonic contractions and in reality is only intermittent—this can be observed by watching the bag of the apparatus when oxygen is administered throughout the convulsion; it will be noticed that very shallow and rapid respirations are taking place in time with the convulsions.

That gaseous exchange is also taking place is demonstrated by the fact that at the end of the clonic phase, and before normal deep respirations are resumed, the patient will be seen to be a good colour with little or no evidence of cyanosis—this being a marked contrast to those cases which do not receive oxygen during the clonic stage.

The technique observed is as follows: The current is administered in the normal manner; after the original muscular contraction and cry it is rapidly verified that the mouth gag is in correct position, has not shifted, and is firmly gripped. A Hewett gas-and-oxygen mask is then immediately placed over the mouth and nose and kept firmly in position; the mask should be of sufficient size to cover the No. 9 size rubber gynaecological ring used as a mouth gag. The oxygen is turned on and the administration is continued throughout the clonic phase and until the patient has taken two or three normal respirations.

With this technique cyanosis is avoided, thereby reducing cardiovascular stress and allowing a wider margin of safety; at the same time the impression gained by this observer is that there is a reduction in distress experienced by the patients on recovery from the convulsion.

I should like to thank Sister B N. Samuel for her efficient running of the E.C.T. clinic.—I am, etc.,

London, S.W.1. S. M. WHITTERIDGE.

Control and Treatment of Diphtheria

SIR,—Dr. James Fanning's interesting account of an outbreak of diphtheria in a girls' school and your excellent leading article on the control and treatment of this infection (March 22, pp. 371 and 384) both draw attention to the necessity for boosting doses of prophylactic at regular intervals during childhood and the school years. Insufficient attention appears to have been paid to this latter aspect of diphtheria control by the propaganda departments of public health authorities, and when this weakness in a child's protective armour is pointed out one is frequently confronted with the parental argument that their 7-year-old is immune because he was injected at the age of 1 year.

There is little difficulty in obtaining permission to revaccinate the school child, but the public still requires considerable education before it will accept the idea of reimmunization to diphtheria, and it is hoped that your leader and Dr. Fanning's article will direct the efforts of public health authorities towards this end.—I am, etc.,

East Horsley, Surrey. BASIL S. GRANT.

Treatment in Early Cases of Influenza and the Common Cold

SIR,—For the past three years I have been treating successfully cases of influenza and the common cold by intravenous injections containing quinine bihydrochloride. Cases of the common cold subsided within 12–48 hours after a single injection of 2 gr. (0.31 g.) quinine bihydrochloride dissolved in 2 ml. of normal saline, while cases of influenza subsided within 2–3 days with the same injection and repeated within 12 hours. A number of cases were specially recorded during 1946 and a large majority of them responded successfully. Of course I am referring to cases seen within the first 24 hours. The object of this report is to interest investigators of this universal malady.

Virchow (1927) thought there might be a small decrease or increase in gaseous metabolism. Hardikar (1925) also noted a change in metabolism. Brown (1912), Solis-Cohen, Kolmer, and Heist (1917) noted that quinine is quite bactericidal to pneumococci *in vitro*. Probably quinine acts by checking the abnormal metabolism which is going on during the infection, or it may be that it interferes with the action of the virus concerned.—I am, etc.,

Belfast. E. O. BLAKE.

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Technique of Venepuncture

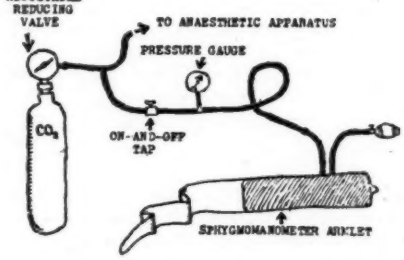
SIR,—Further to Dr. J. A. M. Cameron's remarks on venepuncture (March 29, p. 425), I have found the essential points to be: (*a*) efficient local anaesthesia; (*b*) complete extension of the arm at the elbow and supination of the forearm; (*c*) congestion of the veins of the forearm by a constriction higher up the arm at about 70 mm. Hg pressure; (*d*) decision as to site of puncture to be made by palpation rather than inspection; (*e*) at the moment of insertion of the needle, traction to be made on the skin distal to the site of entry and at the same time the patient or donor to be asked to clench the fist; and (*f*) attention to sharpness of the puncture needle.

I have found an oblique light shining on wet skin to be most helpful in demonstrating a slight convexity of the skin due to a palpable but not otherwise visible underlying vein, and whenever possible I try to avail myself of this aid, but do not regard it as essential. In many cases a suitable vein is plainly visible without this aid, and in most of the others the course of the vein will be identifiable by the palpating finger. In less than 0.5% of adults the only superficial veins are very small and close to the surface. No larger vein is palpable, and evidently most of the return circulation from the hand and forearm is by vessels deep to the bicipital fascia. This condition is not always bilateral, and both arms should be examined, but where it is I do not regard these persons as suitable for venepuncture in the antecubital fossa. I agree with Dr. Cameron that attention to stance is of prime importance for successful results.—I am, etc.,

Cambridge. C. B. V. WALKER.

Sphygmomanometer Armlet as Tourniquet

SIR,—The daily Press recently reported a case in which a tourniquet was not removed from a patient's leg following an operation, and in which the mishap had a fatal termination. I have for some time employed in orthopaedic operations requiring a tourniquet a simple apparatus connected with an ordinary anaesthetic machine, by which an inflatable sphygmomanometer armlet is connected by tubing to a reducing valve on the CO_2 cylinder. The latter is adjustable to give pressures between 150 and 250 mm. Hg, and, since the exact pressure maintained does not much affect the use of the gas for anaesthetic purposes, the supply is made by a branch tube both to the armlet and to the flowmeter of the machine.



The apparatus is indicated in the accompanying rough sketch and has proved of real practical use. One becomes at once independent of the minute leaks which seem an inseparable feature of such pneumatic systems, and the surgeon is spared the irritation of the pressure running down in the middle of the operation. Above all, it is impossible for the patient by some mischance to be returned to the ward with the tourniquet still in action.

Some modification of the commonly used reducing valves and armlets is of course necessary for the use proposed, and unfortunately there does not appear to be any commercial source of such apparatus. I am, however, making inquiries with a view to their manufacture, and hope to write later when a more finished type of apparatus is available.—I am, etc.,

Wallasey, Cheshire. R. L. WYNNE.

Control of Leprosy

SIR,—In the interesting leading article (Nov. 2, 1946, p. 65[illegible] on the control of leprosy occurs the statement: "It soon became evident that compulsory isolation had become worse than useless." At first sight this remark, from its context, might have been regarded as applied to India alone, but when coupled in the same article with a disparaging reference to "the Biblical and Middle Ages plan of compulsory segregation" and a later contrasting mention of "modern methods," it is evident that it was intended as an authoritative statement of the present position, and that by the up-to-date person the policy of compulsory segregation should be regarded as a futile anachronism.

Having been advocating and carrying out a policy of compulsory segregation for the control of leprosy in Fiji and the neighbouring islands of the Pacific since 1930, I am naturally interested in t[illegible]

applicability or otherwise of your editorial comments to our work in this part of the world. It may also be of interest to your readers to know how the condemned policy actually works in the Pacific. Compulsory isolation of lepers in Fiji started in 1911 with the establishment of a small "asylum" on the recently purchased island of Makogai. Up to the end of 1946, 738 patients, or over 25% of the 2,845 admissions, had been discharged as "arrested" (having shown no sign of leprotic activity for at least 2 years) in addition to 436 "improved" patients, many of whom would have undoubtedly gone on to "arrest" under continued treatment but who were repatriated to India at their own request.

In a comparative study utilized in my handbook on Makogai, published in 1944, and reviewed in your columns, I pointed out that during the 24 years from 1919–43 our numbers had increased by 92, or 0.07 per thousand of the population, but that study of the types and stages admitted in each of the two years mentioned showed a marked improvement. Thus in 1919 there was not a single case admitted in the early non-infective neural-1 stage; in 1943 27% of the cases were neural-1. In 1919 24% of the admissions were hopelessly crippled and deformed neural-3 cases, as against only 3% in 1943. In 1919 32% of admissions were in the highly infective and advanced lepromatous-3 stage; there were none in 1943. Regarding these results I commented: "Prejudice, compounded mainly of ignorance and fear, natural in the early stage of a policy of segregation, has largely broken down. Discharged cases, averaging about forty a year over the past ten years, provide the best form of propaganda, both as to the good living conditions at Makogai and as proof that segregation is not necessarily life-long."

More than 60% of our patients are lepromatous and infective—the type for which your leader-writer advocates isolation "with little or no compulsion." The suggestion is of course that if we improve conditions, increase amenities, and make the leper colony a real "home from home," patients will be so attracted that there will be little need for compulsion. This is very largely a delusion. At Makogai patients are better housed, fed, and clad than they have ever been in their lives and are given the best available "modern" treatment. They are provided with churches, schools, talkie theatre complete with stage, etc., and their own co-operative store. They are paid for their garden and fishing produce as well as for the many jobs of maintenance of roads and buildings they are enabled to do. There is no question as to their appreciation of all these amenities, and they are on the whole a contented community, the element of compulsion being kept well in the background and needing to be invoked on rare occasions only. It is quite certain, though, that their knowledge of any relaxation of the law under which they are segregated would definitely unsettle their minds, and although the large majority of at least the more advanced cases would undoubtedly wish to return, most of them would want to "taste their freedom" by visiting their relatives from time to time and for variable periods and so nullify the whole desired effect of isolation.

With regard to the remaining 40% or less "non-infectives," the difficulty of transport to and from the forty-odd islands from which our patients are drawn would necessitate the use of a few only of the main islands for the establishment of the proposed out-patient clinics, with the result that a large proportion of these patients would still have to be uprooted from their island homes and families. Fiji thus presents a very different problem from that of the solitary island of Nauru with its 70 square miles of total area, whose "serious epidemic" is quoted, apparently as an example of what should be done in the South Pacific. Knowing that compulsion was no longer available to enforce their attendance, many of our natives would certainly refuse to exile themselves in this way—at least for any prolonged course of treatment such as is necessary for leprosy. Being liable at any time to pass into an infectious stage, they would thus constitute a continual danger to the public.

In his report on a "Health Survey of the British Solomon Islands Protectorate" Dr. S. M. Lambert, representative of the Rockefeller Foundation, comments on the Leper Hospital on the Island of Malaita: "They have 73 lepers in the colony at present: they have seen 194 lepers; they have had no arrested cases. The institution is growing, but they have no legal hold on the native. He may come in for a month and then he may not be seen again. They cannot compel them. . . . Dr. Macpherson, in charge of the leper asylum, told me that at Qaibaita the average term of residence of a leper is four weeks . . . Hetherington (S.M.O.) agrees with the experience of Macpherson that the principal trouble is that the natives expect to get the same result for leprosy as they do for yaws. If they do not improve after three 'needles' they leave." This is of course the great weakness of attempting to treat leprosy without compulsory powers. I have heard the same complaint from numerous workers in India and elsewhere struggling to persuade their reluctant patients to stay the course. The prolonged period of treatment required, often without any very obvious improvement, must be terribly discouraging to the victims, and it is asking too much of all but the most intelligent and persevering to continue to submit to an indefinite series of injections if the choice is left to them.

In conclusion I would like to emphasize that this letter is merely a protest against the assumption that because a policy has been found impossible or inadvisable in certain areas it is thereby necessarily to be condemned everywhere. I would submit that in Fiji we have attained and are attaining, under the existing policy, results that would be impossible under a voluntary system. It is gratifying to note that a review in the current *International Journal of Leprosy*, just received, refers to our "humane and efficient system" at Makogai. In the same way, therefore, as we have learnt to treat the patient rather than his disease, so must we determine our medical policies in the light of local circumstance and not by rule of thumb.—I am, etc.,

Central Leper Hospital, Makogai, Fiji. C. J. AUSTIN.

Peptic Ulceration

SIR,—I have been reading the recent correspondence on peptic ulceration with interest. Attention seems to be mainly focused on diet, intermediate feeds, alkalis, and surgery. Vitamin C is thrown in. Bilateral vagotomy is mentioned. Too little attention is paid to the psychological element, for psychoneurotic causation seems to me to be present in the majority of cases of chronic ulcer.

In the course of five years' practice I believe I have treated perhaps a hundred cases without ever having to admit defeat by seeing one of them undergo operation.

The treatment is the usual diet, two-hourly intermediate milk feeds, and alkalis. In all cases with a psychogenic aetiology, partial or total, phenobarbitone sodium, 1/4 gr. (16 mg.) or 1/2 gr. (32 mg.) is given in each dose of mist. mag. trisilicate. Occasionally tr. belladonna, 5 minims (0.3 ml.), is added to the alkali. The advantage of including the phenobarbitone in the medicine is that it can be introduced and withdrawn without the patients' knowledge. This to my mind is of paramount importance in treating the psychoneurotic. It is possible to cure the ulcer and then the residual symptoms of pain while dealing with the psychological element by phenobarbitone, and so to break the vicious circle. When residual symptoms have subsided, with the patient's confidence in himself increased in direct proportion to his weight, it is then possible to withdraw the phenobarbitone while continuing the alkali. His medicine is by this time the pillar of the patient's strength, but once the phenobarbitone is withdrawn (without his knowledge) the patient becomes less dependent on his medicine, and eventually this can be withdrawn. Why he becomes less dependent on his medicine he doesn't know, but to him it implies final health. Dieting is maintained for some months or perhaps indefinitely.

I have found that this method of treatment produces more rapid healing from the day the *x*-ray diagnosis of ulcer is made to the day *x*-ray proof of healing occurs than by any other method.—I am, etc.,

Hampton Hill, Middlesex. I. E. D. MCLEAN.

Solitary Prolapsing Thrombosing Piles

SIR,—It has been my practice for the last couple of years to ligature and excise solitary thrombosing prolapsing piles which are giving rise to severe symptoms and do not respond rapidly to palliative treatment. The excision is done under local analgesia and mostly in my surgery. The dissection follows the St. Mark's Milligan and Morgan method generally. In some the longitudinal muscle band is reluctantly divided in order to free the pile sufficiently to obtain a ligature of the uninvolved pedicle. Stout linen suture is used. The excision is only done in the clean thrombotic stage and in the early ulcerative stage with no gross signs of inflammation.

Many patients are saved from the strangulation and consequent gangrene of this complication with its prolonged severe pain. Sulphadiazine 3 g. is given one hour pre-operatively with sodium bicarbonate and 1-g. doses four-hourly with sodium bicarbonate are continued for six doses.—I am, etc.,

Johannesburg. STEPHEN EISENHAMMER.

Child Guidance

SIR,—Prof. Cyril Burt invites discussion in his article in the February issue of the *British Journal of Educational Psychology*. May I offer a little ?

(*a*) He writes : "So far as the children are concerned what is needed in most instances is not psychotherapy or treatment but character training, re-education, and remedial coaching." This puts his finger on what is probably the greatest weakness of modern child guidance—namely, the practice of psychotherapy on children where none is required. In Surrey the policy adopted is that of Prof. Burt ; direct psychotherapy with the child plays only a minor part in my clinics. But what is "character training" in a child whose school and home training have failed to prevent him reaching a child guidance clinic ? It is something which is certainly going to involve intensive treatment (analytical, persuasive, and so on) of the mother, sometimes of the father, and sometimes of the brothers and sisters. Why does Prof. Burt skip this point to reach his conclusion that "the problem of child guidance is not so much clinical or medical but psychological" ? Is it because in many clinics the so-called treatment of the mother is done by psychiatric social workers ?

(*b*) He adds that "the psychologist" should have a training in the home conditions of the people. The psychologist is much too specialized for this. Only an experienced general practitioner knows sufficient of the intimate life of people to make eventually a really good child psychiatrist. Prof. J. A. Ryle, of Oxford, this month has emphasized the importance of this side of "social pathology" in an address to the New York Academy of Medicine. (The child psychiatrist must of course be trained as well in psychiatry.)

(*c*) Prof. Burt insists also that there should be two types of child guidance clinics : one medical and one educational. In this he has formidable support in Dr. Blacker, and more recently the powerful subcommittee of the regional medical advisory committee of the Nuffield Provincial Hospitals Trust have made similar recommendations. On the other hand against this three-headed dragon there stands, so far alone like St. George, Dr. Bowlby, who at an interclinic meeting of the National Association for Mental Health pronounced against this view.

On paper the dragon has it ; but in practice they will find their scheme rather difficult. It will work in small areas like county boroughs, but it will break down in larger areas such as the counties. In Surrey we are once again rather ahead of the planners : we have the dual scheme at work, but it is under one administration only—the public health department. A child psychiatrist visits school clinics and hospital (St. Helier County Hospital). There are no psychiatric beds, but the child psychiatrist visits the children's wards when requested by the paediatricians. He sees patients in the hospital from the schools as well. The enemy to the Nuffield subcommittee's scheme is geography. To have double administration clinics would present innumerable difficulties. (I wonder how many of the Nuffield subcommittee are actively engaged on child psychiatry requiring county organization.)

(*d*) The most practicable scheme in the large areas is for the education department to refer cases requiring psychiatric advice *on paper* to the child psychiatrist through the school medical department, and much of what happens after that *will depend on where the child lives*. The geographical position of the child's home is going to play a greater part in determining which child guidance clinic he will attend in the first instance than will the actual diagnosis. That is why Prof. Burt's recommendation to divide cases into "normal" cases and "pathological" cases is an impracticable one, even if his meaning were clear on this point.

(*e*) If the academicians are not careful they will drive more child guidance into the out-patient departments of mental hospitals, an action which is analogous to treating early surgical conditions of children in the out-patient department of a cancer hospital.

I agree with Prof. Burt's idea that child psychiatry should be a branch of paediatrics, but I also agree with Prof. D. R. McCalman's statement (made some years ago) that elasticity in local development should be allowed.—I am, etc.,

Kingston-on-Thames. JOHN A. MCCLUSKIE.

Shortage of Nurses

SIR,—May I beg a little space to answer the letters of Miss Evelyn C. Pearce and Miss C. Morfee (March 29, p. 424) ? To take Miss Pearce's letter first. I am well aware of the establishment of training colleges for nurses, and have repeatedly examined candidates from these schools, who are hall-marked by the fact that they do not appear in uniform. I regret to state that though these girls seemed of a better type, they were in general considerably worse taught than candidates coming from hospitals, who had been under sister tutors. I can remember one group who had never tested urines, and another group who were completely ignorant of all the digestive ferments. I have yet to learn that the State is subsidizing these schools and pupils, which I have submitted is the only way to get satisfactory recruitment. If the State is not doing so, then I am afraid Miss Pearce has missed the real point of my letter—that is, that the State must keep these girls from their school-leaving age to the time they are old enough to enter hospital.

Miss Morfee's complaint that nurses are used as messengers seems merely *une raison de plus* for discontent, and rather a trivial one at that. Nurses, after all, are meant to be useful, and they *have* been relieved of a great many of their more menial duties. Is it too much to beg for a correction in my original letter ? "They would pass examinations each year and be eliminated and passed on for another year" should read : They would *sit for* examinations each year and be eliminated *or* passed on for another year.—I am, etc.,

Great Yarmouth. LEONARD LEY.

SIR,—Nursing could be made more attractive to girls if they were not under discipline in their hours of rest. The hospital houses its nurses largely for its own convenience, but there is no reason why they alone of almost all employees should have to be under the authority of their employers when they are off duty.

In Sweden the nurses run their own homes through a committee and thereby have a feeling of greater freedom. Nurses still grumble about their food, but if they were allocated their rations and invited to devise their own menus I feel that these complaints would soon cease, particularly if the most inveterate grumblers were put on the menu committee. In the magnificent new hospital in south Stockholm they have gone one step further, and any nurse who wishes is allowed to live in the city, a small nurses' home being retained so that they may have a nucleus of nurses to fall back on in emergency. This seems to me the ideal to be aimed at for our future hospitals.—I am, etc.,

Colchester. M. E. LAMPARD.

SIR,—In reply to Dr. Leonard Ley's letter (March 15, p. 355) I see nothing "revolutionary" in any of his proposed changes, half of which are already in existence. The urgent need for intelligent people to take up the work is well known, but having entered the nursing profession they find their intelligence insulted by people like Dr. Ley, who infers that they are incapable of managing a *private* life (I can find no other interpretation of "racketing about half the night"). A nurse's job is certainly an arduous one, but no more so than countless others, where the lives of many depend upon alert minds—e.g., bus and train drivers, etc. Does anyone question the hours they keep ?

As for the nurses' exposure to ill health, I believe that doctors take the same risks. It would be well for the powers that be to ponder awhile on "freedom after work." Who knows, it might prove to be the answer to "why no nurses."—I am, etc.,

London, S.W.17. EDITH RICHARDS.

First Things First

SIR,—The conclusion of Mr. Malcolm Donaldson's letter (March 22, p. 388) that "it takes four years to train a nurse" is open to question. Increasing support goes to the "two-tier" plan of a 2 years' concentrated training for State registration followed by graded post-certificate work for those who aim at the higher services of administration or specialized work including the ward sister's.

You, Sir, by giving columnar priority to Dr. Donaldson's plea for "First Things First" would seem to agree that the nursing crisis ranks high even among its many competitors to-day, but is it really the housing aspect that places it in such pre-eminence or wider considerations ?—I am, etc.,

Moor Park, Northwood. ESTHER CARLING.

An 84-hour Week

SIR,—Perhaps I owe Dr. G. Rosemont an apology for failing to see certain of the subtler implications in his original letter (Feb. 8, p. 233). The point, then, is this : that the National Health Service, which is intended to provide the nation with an efficient, smooth-running, bigger, and better health service than it has, or ever had, proposes to do this by demanding—and if need be, enforcing—a 24-hour daily service from its doctors ? There is no trade, profession, or occupation in the most servile state that would dare to make such a demand of its workers and get off with it. If, as Dr. Rosemont asserts, this is the intention of the Minister, then I entirely agree with him that the Minister will be justified in enforcing it "if we sign the contract."

Granted, no doctor will be called upon to work continuously for 24 hours ; even so, he should not be required to hold himself in readiness for service during 168 hours, which make up the calendar week. Dr. Rosemont suggests that it should be the duty of the Minister to provide an emergency night service. I return to my original point—which was rather neatly sub-edited, saving your presence !—that adequate leisure should be ensured the G.P. by the official provision of emergency services available on Sundays, half-days, and holidays. No doctor serving under the N.H.S. scheme should be required to supply a substitute at his own expense during sickness or holidays ; and every doctor should be entitled to at least one free day in the week. If the N.H.S. scheme cannot provide these minimal amenities, the improvement in the health service to the community will prove theoretical rather than actual.—I am, etc.,

Edinburgh. R. DINGWALL KENNEDY.

SIR,—Doctors are men of honour, and we should not agree to take on obligations that we are not able to perform. To-day, labour is impossible to obtain—for example, although I have kept my car for 20 years in a public garage, yet for the past two months I have had to dig my garage doors free of snow because modern apprentices do not do labouring work. I can never get the car washed, so scarce is labour.

Our wives are not our slaves. Does Dr. G. Rosemont (March 22, p. 391) suggest that we should compel them to be on duty answering doors and 'phones for such hours as no paid servants would work ?

Locally during the past nine months 15% of the panel practitioners have resigned to take up other work. Moreover, do not our present working conditions bring us a higher death rate (*vide* Spens Report, p. 5) ? Is this high death rate to be perpetuated ?

The terms of service for G.P.s must be national, and the hours must not exceed a just week's work. The responsibility for the 24-hours service must be the Minister's, not the individual doctor's, otherwise the scramble to get out of G.P. work will become a deluge.—I am, etc.,

Lincoln. G. D. SUMMERS.

Rates of Pay

SIR,—I think it is true that the increased rates of pay in the Army have been largely wiped out by a juggling with allowances and a different interpretation of what is and what is not taxable. Though heralded in the Press as an improvement in conditions, the new arrangements have borne hardly on those affected. Presumably they cannot strike, they cannot organize to get redress, and they are denied access to the correspondence columns of newspapers, except anonymously.

Since they are employed by the State they cannot sue the Crown, nor will it be possible when the Crown Proceedings Bill is passed. This is another example of cant about democracy and cant about freedom from fear and want ; but it has served the politicians a little. What is to prevent doctors in the new Health Service from being treated similarly, and what remedy would they have ? In my opinion they would have none.—I am, etc.,

Colchester. G. C. PETHER.

The Pemmican B.M.J.

SIR,—On behalf of my Association I would congratulate you and your staff on the sterling effort you have made to keep up the circulation of the *British Medical Journal* in spite of the extreme difficulties which you have had to face.

Colleagues in South Africa have a deep sense of appreciation of the courage of the people of Great Britain which their efforts during the war aroused. Their courage in the present crisis has done much to extend our admiration, and this effort of the British Medical Association, though small when compared with the background, has done much to illustrate the qualities which we so much admire.—I am, etc.,

Capetown. A. H. TONKIN,
Medical Secretary,
The Medical Association of South Africa.

SIR,—We commend the courage and resourcefulness which produced the "Candle-Light" number of your famous *Journal*, and we shall treasure the copy which has come to us. We have read over here with mingled feelings of pity and distress of the difficulties to which England has been subjected by the recent vagaries in your weather conditions, although possibly they must be regarded as more than vagaries when they produce such absolute paralysis as has been visited upon your country. Let us all hope that the situation may never be repeated.

With all good wishes, believe me,—I am, etc.,

New York. GEO. W. KOSMAK,
Managing Editor,
New York State Journal of Medicine.

SIR,—Here, in the lush, centrally heated warmth of my consulting-room, by the bright fluorescent lights on my ceiling fixture and the warm glow of my desk-lamp, I read the March 1 edition of the *B.M.J.* (the manually produced one). My heartiest felicitations and admiration to my British colleagues for their grand spirit in carrying on despite all adversity! Being Scottish-trained I can understand the rugged times you must be having now.

The *Journal* helps to keep the old ties to Britain burning for me and, I'm sure, many others. Carry on, and let's hope your troubles are soon over.—I am, etc.,

New York. SEYMOUR TENZER.

SIR,—Received this date (March 11) the *B.M.J.* of Feb. 22. May I thank you for this valuable souvenir. In years to come I can look upon this as evidence of your country's trials in 1947. The prosperous and influential Empire and Commonwealth of that future date will have given the lie to those who predict its dissolution to-day. We who were with you in 1940 know that you will win through this trial also.—I am, etc.,

Wakefield, Canada. J. H. S. GEGGIE.

SIR,—At a meeting of the West Sussex Division of the B.M.A. last Wednesday, the following resolution was passed:

"That this Division desires to express to the Editor of the *British Medical Journal* its appreciation of himself and his staff for their efforts in producing the pemmican *B.M.J.*"

—I am, etc.,

Worthing. R. H. WILSHAW,
Hon. Secretary.

*** We print above a further small selection from the many letters on the Pemmican issues of the *Journal*.—ED., *B.M.J.*

It is estimated that there are 150,000–200,000 people with cerebral birth palsies in the United States. About 70% can be educated. Psychiatrists emphasize that it is the parents who must play the most important part in bringing up these children. The Michael Reese Hospital at Chicago maintains a day nursery to which parents can take palsied children and where they receive instruction in continuing the children's training at home. Orthopaedic and physiotherapy departments are available for physical defects.

Obituary

W. T. MUNRO, M.D., F.R.C.P.ED.

The death of Dr. William T. Munro, which took place at Perth Royal Infirmary on March 11, after a long illness, removes from our midst one of the leading British authorities on tuberculosis. He was born at Friockheim, Angus, in 1884, and was educated at Arbroath High School and the University of St. Andrews, where he qualified in 1908, proceeding M.D. in 1912. He obtained the D.P.H. in 1914, and was made a Fellow of the Royal College of Physicians, Edinburgh, in 1929. Shortly after his retirement the University of St. Andrews, in June, 1945, conferred on him the honorary degree of LL.D.

Dr. Munro was resident for a time in Dundee Royal Infirmary, and later went to the Sidlaws Sanatorium, Auchterhouse. The 1914–18 war interrupted his work, and it was in 1920, after a period of service in the Army, that he was appointed medical superintendent of Glenlomond Sanatorium. There he remained for twenty-five years, until ill-health forced him to retire in 1944 at the early age of 60. The sanatorium had been open for only a little over a year before Dr. Munro took charge there, and that the name of Glenlomond became widely known was entirely due to his work. He was not content merely to be a medical superintendent, busily engaged with problems of administration, diagnosis, and treatment. He had an active and inquiring mind, constantly concerned with the elucidation of the many problems of tuberculosis. Much research work was done during his tenure of office at Glenlomond, and in all he contributed some thirty papers to medical and scientific journals. His outstanding achievement was his work on the bovine tubercle bacillus as a not infrequent cause of pulmonary tuberculosis in man. This led to his association with Dr. Stanley Griffiths and a long and fruitful collaboration in connexion with the incidence of pulmonary tuberculosis of bovine origin. In later years Dr. Munro was greatly interested in the mode of spread of tuberculosis in infected children. His deductions on this point did not meet with universal acceptance, but he would probably not have expected it to be otherwise. An enthusiast, always questing for the truth, he did not accept his own findings as final. At times a severe, if never unfair, critic, he was always prepared to meet criticism of his own opinions. He took an active interest in the National Association for the Prevention of Tuberculosis, and was one of the most prominent members of the Tuberculosis Society for Scotland, which he represented on the Joint Tuberculosis Council. After he left Glenlomond he continued as consulting physician to the Bridge of Earn Hospital, and took an active part in discussions and meetings of the Tuberculosis Society until a few months before his death. On his last attendance there, and when obviously a very sick man, he made a spirited plea for the recognition of all the manifestations of tuberculosis as one disease and deprecated the present tendency to regard respiratory tuberculosis as a separate entity. A keen intellect, great enthusiasm, and tenacity of purpose were probably his outstanding characteristics. Socially, to those who knew him well, he was generous and kindly, with a fund of entertaining anecdotes. He was ever ready to help and to impart knowledge to his younger colleagues, and many men must be grateful for his instruction and guidance. His contribution to our knowledge of tuberculosis is unquestioned, and for that he will be gratefully remembered.

H. MUIR EVANS, M.D., F.R.C.S.

Dr. H. Muir Evans, who died at the age of 80 on March 28 at his home at Beccles in Suffolk, combined the life of a successful busy general practitioner with that of a research worker in biology, in this way following the example of many distinguished predecessors. He was a Fellow of University College, London.

The third son of Mr. George Evans, of Richmond, Surrey, Harold Muir Evans was educated at Bute House, University College Hospital, and Berlin University. He took his conjoint qualification in 1889, the London M.B. in 1890, and the M.D. in 1893. In 1939 he was elected F.R.C.S.England as a member of the College of more than 20 years' standing. After serving as a house-surgeon at University College Hospital he was for two years medical officer for the Cape Government railways on the Bloemfontein Vaal River Extension, and on return to England served for a time as registrar to the Central London Throat and Ear Hospital. In 1894 he began work as a general practitioner in Lowestoft in Suffolk, and continued in practice there until a few years ago. Probably reasons of health determined his choice of a seaside resort on the East Coast in which to spend his professional life. There can be little doubt that his exceptional mental and professional gifts would have secured him a distinguished place in consultant medicine if he had chosen this type of work as his career. From boyhood Evans was a keen fisherman and sailor, and he found these hobbies led him into the paths of natural history of most interest to him. One of his early pieces of research was into the poison glands of fish. Communications by him on the defensive spines of fishes and on the anatomy and physiology of swim-bladder and weberian ossicles in Cyprinidae were read before the Royal Society. In 1940 he published a book entitled *Brain and Body of Fish*. The reviewer of this in the *Journal* (May 18, 1940) wrote: "There can be no doubt that the author's method of studying the correlation of function and structure is profitable from the anatomical point of view, for it does provide valuable clues to the significance of neural mechanisms which might otherwise be quite obscure. . . . It is a book which not only will be useful to the comparative neurologist but must also be read by all those who make a study of fishes." The reviewer referred to Evans's book as an outstanding manifestation "of the real spirit of scientific inquiry . . . still occasionally to be seen." In 1943 Evans published a delightful book entitled *Sting-fish and Seafarer*. Another example of his work in biology was a paper on the pituitary gland of the eel, published in the *Journal* of April 6, 1940, in which he traced the seasonal changes in the morphology of this gland. Three years' research showed him that in the last two months before migration there was a great increase in the size of both anterior and posterior lobes of the eel's pituitary. Evans was an accomplished amateur painter and illustrated his papers and books with his own pen. In the war of 1914–18 he served with the rank of major as surgeon specialist in clearing stations. He was always keenly interested in the work of the B.M.A. and served at different times as Representative, as Chairman of the North Suffolk Division, and as President of the Suffolk Branch. He was Consultant-Surgeon to the Lowestoft and East Suffolk Hospital and had a wide practice and sound reputation as a general practitioner surgeon.

Muir Evans was distinguished in person as well as in mind, and at times found it difficult to suffer fools gladly. He used to say that he gave nine-tenths of his life to his profession and the remaining one-tenth to his hobbies; and his principal hobby was that of a research worker in field biology. His death removes from medicine a general practitioner who represented a type of medical man now become unfortunately rare in these days of scanty leisure and extreme specialization. He is survived by his widow, two sons, and a daughter, to whom our sympathy is extended.

WALTER RAMSDEN, D.M.

Dr. Walter Ramsden, Senior Fellow of Pembroke College, Oxford, and Emeritus Johnston Professor of Biochemistry in the University of Liverpool, died at Oxford on March 26 at the age of 79. Walter Ramsden, the son of Dr. W. H. Ramsden, of Saddleworth, went from Keble College, Oxford, where he distinguished himself in the honour school of physiology, to Guy's Hospital. He qualified in 1897 after three years as a Radcliffe Travelling Fellow, studying at Zürich and Vienna, and he proceeded D.M. in 1902. His election to a prize fellowship at Pembroke allowed him to devote himself to physiology and he became a university demonstrator and also taught pupils at Christ Church. In 1909 he served as senior proctor. He became Johnston professor at Liverpool in 1914, and continued there until he reached the retiring age in 1931. He did some important work on the theory of emulsions, and was the author of several articles on this subject. He was a member of the Physiological Society and of the Biochemical Society

and had been secretary of the section of physiology at the annual meeting of the British Medical Association in 1904. After his retirement he returned to Pembroke College and still took a lively interest in college affairs. His biochemical work continued and he became particularly interested in the chemistry of silk proteins. He was one of the last men to hold an Oxford life fellowship.

GEOFFREY DUCKWORTH, M.R.C.P.

Dr. Geoffrey Duckworth died suddenly at his home at Wimbledon Common on March 18 at the early age of 46. Educated at Rossall and University College, London, he entered St. George's Hospital in 1926, and qualified in 1929. After serving a term of clinical assistantships, he decided to take up dermatology as a specialty and obtained the M.R.C.P. in 1932. He was later appointed as skin physician to the Bolingbroke Hospital, Wandsworth Common, to St. John's Hospital for Diseases of the Skin, and to the Royal Hospital and Home for Incurables, Putney. He was the author of a number of papers, among them a report on two cases of ariboflavinosis which appeared in the *British Medical Journal* in 1942.

A colleague writes: Geoffrey Duckworth will be remembered as a shy, diffident, scholarly doctor with an immense capacity for work and perseverance. He suffered from severe ill-health from his student days, and this culminated in his early death. With his fortunate financial background and happy family life he might well have taken a rather dilettante view of his profession, considering his delicate state of health. Duckworth, however, was not of this type. He gave of his best to his hospital patients and to the pursuit of learning in his chosen specialty. His untimely death will come as a great shock to his many friends.

Dr. Leslie J. Harris writes: The Nutrition Society owes an immense debt to Sir JOSEPH BARCROFT for all the generous and unselfish work he did on its behalf. He had been active in the Society's interests ever since its foundation in 1941, and had been its chairman since 1945. No effort was too much for him in furthering its welfare; and the success of the Society has been the measure of his unstinted and unfailing devotion.

Dr. WILLIAM JOHNSTON DEWAR died at his home in Arbroath on March 5 at the age of 76. Graduating M.B., C.M., with honours, at Aberdeen in 1891, he took up general practice in Arbroath, first in partnership with his father, the late Dr. James A. Dewar, later on his own. He proceeded M.D. in 1905. After retiring in 1923 Dr. Dewar devoted much of his time to public work. He was a member of the Arbroath Town Council for nine years.

Dr. Vera D. Davidson writes: After he retired from practice, Dr. Dewar did not lose touch with his profession, being a constant, welcome, and helpful visitor at Arbroath Infirmary, where he observed with great interest every advance in treatment and equipment. His other interests were wide, his sympathies deep; he made himself always accessible to those in need of his advice or help. There must be many in his native town who can say that, turning in time of trouble to "Dr. Willie," they have been assisted through their difficulties by his unstinted efforts on their behalf. He was a sincere member of the Episcopal Church in Scotland, and a practical friend to the children of Aberlour Orphanage. A gentle and whimsical humorist, he was always the best of company and welcome wherever he went. His freshness of outlook he retained always, and he never lost his sense of wonder. Sound physician, wise counsellor, and good friend, Dr. Dewar will long be missed.

Dr. KENNETH ROBERT HAY, who died on March 12 in London, qualified in 1898. He came to St. Bartholomew's Hospital from Caius College, Cambridge, and in due course became house-physician to Sir Dyce Duckworth.

Col. W. P. S. Branson writes: A tall, spare habit of body and a face which an enemy—had he ever had one—might have called too long, until he smiled, combined to give Kenneth Hay a serious air which belied the native gaiety of his spirit. Those who can revive the memory of their first visit to his lovely home, Sacombe, near Ware, will surely revive also their delighted surprise at finding in the grave young man they knew in London one who was in truth the chartered buffoon and laughter-maker of his large and happy family at home. For such he was in those far-off days. His health, never of the most robust, led to his taking a voyage round the world at about this time, followed by house appointments at the Metropolitan Hospital and at the East London Hospital for Children. A few may remember him at Shadwell, where he was casualty officer; and Dr. Herbert Morley Fletcher, Sir Ernest Graham-Little, or Dr. A. M. Gossage, who were assistant physicians at that time, may recall the stentorian voice which could still the chatter even in that casualty department. He practised first in St. James's Place, and later in Mayfair, and was able to indulge an omnivorous taste in medicine, science, and the arts by use of the many facilities that lay to his hand in London: the Royal Society of Medicine, in whose historical section he held office at one time; the Royal Institution; and meetings in many by-ways of knowledge, such as industrial psychology, into which he loved to prowl wherever he could find them. During the first world war he served in the First London General Hospital at Camberwell, and gained the O.B.E. For some years between the wars he supervised the health of the staff of the Army and Navy Stores. But a great part of his time went in the care of his many friends, while he fought off with disdainful courage a life-long susceptibility to the fogs of his beloved London. The second world war found him still busy with tribunals of various sorts and with medical services to wartime industry; and even after it he remained in harness to the end, as he would have wished.

Dr. WILLIAM SALISBURY-SHARPE died in his sleep on March 15 at the age of 83. He qualified from St. Mary's Hospital in 1888, proceeded M.D. in 1903, and took the F.R.C.S.I. in 1909. He had been medical officer to the G.W.R. men's club, and later became chief consulting surgeon to the G.W.R. He was also physician to the Mildmay Mission Hospital in Bethnal Green and assistant surgeon to the Central London Ear and Throat Hospital, as it was then called. A member of the old Volunteer Corps, he later joined the Territorials and gained the rank of lieutenant-colonel and the T.D. He took his field ambulance to France in 1914 and then to Salonika. After the war, while carrying on a West End practice, he obtained the M.R.C.P.London, and the D.T.M.&H., a remarkable achievement for a man approaching 60. On retirement he settled in Lincolnshire, which was his native county. He was county commissioner for the Red Cross in Lincolnshire, and had been D.C.M.S. for the London region. He was a fine horseman and a good shot, and in appearance and bearing might easily have been mistaken for a regular soldier. His funeral took place at Mavis Enderby, where he was born, and where his wife was buried. He leaves two daughters and a son, a colonel in the R.A.M.C. at present serving in the Middle East.

Dr. ROBERT GEORGE BANNERMAN died in London on March 26 at the age of 56 after a short illness. A student of Edinburgh University and London Hospital, he graduated in 1914, proceeding M.D. in 1919. During the 1914–18 war Dr. Bannerman was in charge of the Dyke Bar War Hospital and later of the Roy Broyston War Hospital. He was later appointed to the staff of the British Hospital at Montana, Switzerland. Returning to England he worked at the Treloar Cripples' Home in Sussex before being appointed pathologist to the Inverness Memorial Hospital. He had been a member of the British Medical Association for twenty years, and was also a member of the Association of Clinical Pathologists. During the recent war he served for a short time in the R.A.M.C., but had to relinquish his commission on account of ill-health.

A colleague writes: R. G. B. was a shy man who eschewed publicity and ambition—yet he could look back on an active past which had made substantial contribution to the science of pathology, notably in haematology. He had a gentle touch and warm sympathy with those who were afflicted; he was a cultured man with sincere appreciation of literature and music, and a humorous teller of choice academic stories dating back to his Edinburgh days. His memory will be cherished by many a colleague and friend.

Dr. WILLIAM ARCHIBALD, who died recently at Strone, Argyllshire, graduated at Glasgow in 1901. He took the Cambridge D.P.H. in 1905 and proceeded M.D. in 1906. He was the first whole-time medical officer to the Borough of Luton, and was appointed in 1908 at a salary of £400 a year. The local government board advised that the salary offered should be £500 a year, and gave only a conditional approval of the appointment until such time as their recommendation was accepted. Dr. Archibald was medical officer of health at Luton until April, 1937, when he retired a little in advance of the usual age because of ill-health. He witnessed the consolidation of traditional public health services and the development of personal health services in a borough which had a population of some 40 000 when he assumed office and which had grown to over 80,000 when he retired. He was interested in epidemiological

problems, and made most of his contributions to medical literature in this field. During the 1914–18 war he served with the Eastern Mounted Brigade Field Ambulance and attained the rank of lieutenant-colonel. He took part in the Gallipoli landing, and served later in France and Belgium. From 1909 onwards Dr. Archibald was an active member of the Order of St. John. He was a divisional surgeon in 1912, a county surgeon in 1934, and a year or so later he became a knight of the Order. For twenty-six years he was a member of the British Medical Association, being chairman of the Bedford Division in 1928–9.

Medico-Legal

NO DIVORCE FOR NEUROSIS

[FROM OUR MEDICO-LEGAL CORRESPONDENT]

The Divisional Court gave an interesting decision in the divorce appeal *Leng* v. *Leng* (1946, 2 All E. R. 590). The Matrimonial Causes Act, 1937, allows divorce for three years' desertion. The law has long recognized a state of "constructive" desertion in which the matrimonial offence consists in compelling the other party to the marriage to live separately.

Mrs. Leng left the home, taking the child with her, and promptly issued a summons before the stipendiary magistrate for maintenance. She gave evidence of a good deal of personal unkindness, one act of violence, continuous nagging, and oft-repeated orders to "clear out." The husband was obviously highly neurotic. He had had several gastric operations. The magistrate found that the wife had had to put up with conduct which sufficiently justified her in leaving home and made a separation order, but he hoped that within a few days the husband and wife would become reconciled for the benefit of the child. Accordingly the husband did not appeal. He wrote his wife an affectionate and repentant letter and visited her twice, but she refused to come back. To the friend who accompanied the husband on the second visit she said she would be a fool to prefer an allowance of £3 10s. a week with a house to look after to a payment of £2 10s. a week under the order with no obligations. The husband applied to the justices to discharge the separation order, but they refused on the ground that owing to his neurotic condition the parties could not live happily together; that the husband would have difficulty in making serious decisions; that his neurosis would injure the health of the wife and the child; and that the wife, in view of her previous experience, was justified in refusing to go back. The husband appealed to the Divisional Court.

Lord Merriman, the President, pointed out that if the Court upheld the justices' refusal to discharge the order, the wife could come back in two and a half years and obtain a divorce. That would mean that by a judgment of a court of justice neurosis was made a ground for divorce. He declined to be a party to any such judgment. Considering the rigorous restrictions on divorce for insanity, no court had the right to say that the neurotic condition of the husband and nothing else made him a deserter. Justices, he continued, really must apply their minds to the law as laid down in the Act and in decisions of the Divorce Court, and not invent reasons of this sort for disrupting married life, bearing always in mind that the marriage vow was expressed to prevail "in sickness and in health." Mr. Justice Byrne agreed.

A FORGOTTEN TOURNIQUET

The governors of the Oldham Royal Infirmary admitted liability in a claim by a widow at Manchester Assizes on March 17 for damages for the death of her husband aged 53. He had fractured his wrist at work in Nov., 1944, and a bone graft became necessary. A graft was taken from his shin on Oct. 4, 1945, and eleven hours after the operation, although he had been in great pain for a long time, someone discovered that the tourniquet round his thigh had not been removed. Even then further delay took place before a surgeon was called to give him a blood transfusion, and he died next day. Counsel said that there was no system by which tourniquets were checked. Mr. Justice Singleton awarded £4,000 damages and costs.

Universities and Colleges

UNIVERSITY OF LONDON

Alfred Schweitzer, M.D., Ph.D., has been appointed to the University Readership in Experimental Physiology tenable at University College, from Oct. 1; he has also had conferred on him the degree of D.Sc.

John Ritchie Gilmour, M.R.C.S., L.R.C.P., has been appointed to the University Readership in Morbid Anatomy tenable at London Hospital Medical College, from Oct. 1.

UNIVERSITY OF MANCHESTER

Research Centre for the Study of Chronic Rheumatism

Under the scheme recently approved for the establishment of a research centre for the study of chronic rheumatism, the Council of the University has appointed Prof. S. L. Baker, M.Sc., Ph.D., M.R.C.S., L.R.C.P. as pathological director of the centre with the title of Professor of Osteo-Pathology. Prof. Baker will begin his new duties on a date to be arranged. The Council also hopes to make the appointment of the clinical director of the centre at an early date.

The Department of Industrial Health in the Faculty of Medicine of the University will in future be described as "The Nuffield Department of Occupational Health." The following appointments to the staff, among others, have been made: *Lecturers in Occupational Health:* Thomas Bedford, D.Sc., Ph.D., S. B. Davis, B.M., B.Ch., Alice D. K. Peters, B.M., B.Ch. *Lecturer in Medicine:* C. S. D. Don, M.D., M.R.C.P. *Lecturer in Urological Surgery:* D. S. Poole Wilson, M.Ch., F.R.C.S.

UNIVERSITY OF EDINBURGH

A series of lectures on the history of medicine will be given by Dr. Douglas Guthrie in the physiology classroom of the University at 5 p.m. on the following dates: April 17, 21, and 28; May 5, 12, and 26; and June 2, 9, and 16. Guest lectures will be delivered by Sir Arthur MacNalty on May 16 and by Sir Henry Bashford on May 23. The lectures are free to all matriculated students and to the staff of the University; and to others on payment of a fee of 10s. in lieu of matriculation. Details will be published in the diary column of the *Supplement* week by week.

UNIVERSITY OF LEEDS

The following candidates have been approved at the examinations indicated:

M.D.—G. R. Fryers, W. L. Hardman, R. F. Lawrence, R. Orton, R. G. Paley, W. Robinson, H. R. Rollin, S. Smith, C. Stringfellow, G. H. Templeman.

FINAL M.B., CH.B.—*Part III (Medicine, Surgery, Obstetrics and Gynaecology, Therapeutics):* [1]Emma M. H. Albinson, [1]R. E. Coupland, [1,2]Charlotte Feldman, [1]R. M. Gaunt, [1]G. W. Lewis, [1]V. H. Radcliffe [1]G. Wilson, Alice M. Clulow, Florence J. Cook, J. P. F. Cook, J. S. Crawford, Diana J. Haiste, G. B. C. Harrop, R. A. Holman, J. R. Jolly, Evelyn R. Lewis, D. H. Miller, N. E. Nathanson, A. P. Phillips, Dorothy R. Russ, Catherine R. Rycroft, J. H. W. Smith, P. M. Smith, Joan C. Stephens, Elaine M. Sunderland, J. N. S. Taylor, L. Vinegrad, Joan L. Walls, H. M. White. *Part I (Pathology and Bacteriology, Pharmacology):* N. V. Addison, T. Barker, H. Black, Jeanne E. Boocock, Josephine J. Borman, [3]J. R. Bowker, J. D. Brackenridge, J. V. Chippindale, A. N. G. Clark, Hazel M. Coleridge, J. M. Critchley, J. D. Crossland, C. R. Cumming, [4]M. Dales, Ilene I. Dunn, J. P. Falkingham, Kathleen Gillen, Roxie Glossop, [4]E. W. Green, R. D. Haigh, D. C. Hall, H. M. Hardy, R. High, Jean Hislop, T. B. Hogarth, Margaret E. Johnson, Mary Lloyd-Evans, T. K. Marshall, F. Menchovsky, C. H. Morris, Joy A. R. Penistone, Sarah L. S. Phillips, Marjorie Pitman, [4]Sheila M. W. Pittock, P. D. Roberts, J. S. Robertson, M. S. Salinsky, Etienne L. Sandford, Kathleen Scott, D. M. Serr, J. H. Shoesmith, M. H. Singer, W. M. Sutcliffe, J. S. Washington, Isobel V. Watson, Barbara Welburn, A. B. Wharton, D. M. Williamson, Dorothy L. Wood, J. C. Woodrow, D. P. Wright.

[1] With second-class honours. [2] Distinction in Medicine and Therapeutics. [3] Distinction in Pathology and Bacteriology. [4] Distinction in Pharmacology.

ROYAL COLLEGE OF PHYSICIANS OF LONDON

Dr. J. Purdon Martin, F.R.C.P., will deliver the Lumleian Lectures on Tuesday, April 15, and Thursday, April 17, at 5 p.m., at the College (Pall Mall East, S.W.). His subject is: "Consciousness and its Disturbances considered from the Neurological Aspect."

ROYAL COLLEGE OF SURGEONS OF ENGLAND

An Imperial Cancer Research Fund Lecture will be delivered at the College (Lincoln's Inn Fields, W.C.) by Dr. James Craigie, F.R.S., on Wednesday, April 16, at 3.30 p.m. His subject is "Relationships of Virus and Host-cell, with Reference to Latent and Cryptic Infections." The lecture is open to medical practitioners, scientists and advanced students.

Medical Notes in Parliament

The Penicillin Bill was taken in Committee by the House of Lords on March 25. On Clause 1, which controls the sale and supply of the substances to which the Bill applies, LORD MARLEY moved an addition to subsection 2 (d). This subsection authorizes the sale or supply of these substances to any authority or person carrying on a hospital, clinic, nursing home, or other institution providing medical, surgical, dental, or veterinary treatment. LORD MARLEY proposed to add after "treatment" the words "under the direction of a duly qualified medical practitioner, a registered dental practitioner, or a registered veterinary surgeon, or a person acting in accordance with the directions of any such practitioner or surgeon." He said the gap in paragraph (d) caused anxiety among qualified medical officers.

Replying for the Government, LORD LISTOWEL said institutions obtaining a supply of penicillin could not, under subsection 1 (a) of the same Clause, use it for treatment except in accordance with the directions of a qualified practitioner. LORD MARLEY said this was unsatisfactory, but he withdrew his amendment and the Bill passed through Committee without alteration.

Curtis Report Recommendations

Mr. ATTLEE announced on March 24 the acceptance by the Government of the recommendations of the Curtis and Clyde Committees that the task of providing a home background for children deprived of a normal home life should be brought under the supervision of a single central department. It had decided that, for England and Wales, this central jurisdiction should be concentrated in the Home Office. A new and enlarged Children's Branch would be created in the Home Office with an expanded inspectorate organized on a regional basis. The primary function of this Branch would be to ensure that everything possible is done to give to homeless children not only the material care but also the sense of security and status which a normal home provides. A standing advisory committee widely representative of the many interests involved, and including representatives of the Ministry of Education, the Ministry of Health, and the Ministry of Labour, would be appointed to assist the Home Office in its administration. In Scotland the Secretary of State proposed to assign to the Scottish Home Department functions broadly similar to those which would be given to the Children's Branch of the Home Office and to appoint a Scottish standing advisory committee. The existing special responsibilities of the Admiralty and the War Office for orphans of Service men and of the Ministry of Pensions for war orphans would continue. The Government accepted the recommendation that county councils and county borough councils in England and Wales and county councils and town councils of large burghs in Scotland should be the local authorities responsible for the welfare of all children deprived of a normal home life.

National Service Bill

Moving, on March 31, the Second Reading of the National Service Bill, Mr. GEORGE ISAACS explained that in normal circumstances doctors and dentists would find themselves called up round about the age of 25; but there would be many in the field of call-up taking specialist courses and wanting to become specialists in one branch of their profession. When an individual requested that it should be done, his call-up could be postponed, and he would be liable to be called up up to the age of 29. That had been done, Mr. Isaacs said, to meet the needs of the professions, so that men would get their additional training. At the same time, it was an advantage to the Services, because they would have within their ranks men with higher qualifications to assist in the professional work of the doctors and dentists in the Forces.

Mr. RHYS DAVIES moved the rejection of the Bill. The debate continued on April 1, when the Second Reading was carried by 386 to 85.

Paper for Periodicals.—On March 27 Mr. PICKTHORN inquired why periodicals had recently been limited to 35% of their pre-war paper consumption; and whether paper mills had been, and were being, supplied with enough coal to meet this demand. Sir STAFFORD CRIPPS said that owing to the shortage of coal it had been necessary to reduce the amount of paper to be licensed for periodicals. In many cases even the reduced amount of paper might not be available. The publishers had been warned of this.

Medical News

Dr. J. Purdon Martin, F.R.C.P., will deliver the Lumleian Lectures before the Royal College of Physicians of London (Pall Mall East, S.W.) on Tuesday, April 15, and Thursday, April 17, at 5 p.m. His subject is "Consciousness and its Disturbances considered from the Neurological Aspect."

The first Sir Julius Wernher Memorial Lecture of the Institution of Mining and Metallurgy on "The History and Prevention of Silicosis, with Special Reference to the Witwatersrand" will be given by Major-Gen. A. J. Orenstein, M.D., F.R.C.P., chief medical officer, Central Mining—Rand Mines, Ltd., at the Royal Institution, 21, Albemarle Street, London, W., on Tuesday, April 15, at 5 p.m. Admission to the Lecture is free, without ticket.

A conference on "Silicosis, Pneumokoniosis, and Dust Suppression in Mines," arranged jointly by the Institution of Mining Engineers and the Institution of Mining and Metallurgy, will be held at the Royal Institution, 21, Albemarle Street, London, W., on Wednesday and Thursday, April 16 and 17, and will be opened by the Minister of Fuel and Power. The programme is as follows: April 16, 10.30 a.m., opening address by the Minister of Fuel and Power. Papers on "The Pathology of Silicosis," by Dr. A. Sutherland Strachan; "The Pneumokoniosis of South Wales Coal Workers," by Dr. J. Gough; "Some Aspects of the Pathology of Pneumokoniosis. Part I.—The Mechanism of the Removal of Dust Particles from the Lung," by Dr. A. Policard, Associate Member of Académie des Sciences and Académie de Médecine de France; "Some Aspects of the Pathology of Pneumokoniosis," by Dr. A. Policard. 2.30 p.m., "Pneumokoniosis on the Kolar Gold Field," by Dr. A. Caplan and Mr. D. J. Burdon; "The Control of Silicosis in the Haematite Mines of the North-West of England," by Dr. John Craw; "A Review of the Work of the Silicosis Medical Bureau, Johannesburg," by Dr. J. M. Smith; "Aluminium Therapy and Prophylaxis for Silicosis," by Dr. Peter W. Edwards; a paper on the treatment and prevention of silicosis in the mines of Western Australia (not yet received). April 17, 10.30 a.m., "Development of Silicosis Suppression Methods on the Witwatersrand—Ventilation and Dust Suppression," by Mr. J. P. Rees; "Dust Suppression in Great Britain," by Mr. J. Ivon Graham and Dr. T. David Jones; "The Government Miners' Training Schools (incorporated in the Union of South Africa)—an Outline of Two Vocational Training Schemes," by Mr. E. J. Bolitho; "The Organization of Dust Research in South Wales," by Dr. T. David Jones; Film, "Dust Suppression in South Wales Coal Mines." 2.30 p.m., "Dust-Sampling and Control," by Mr. J. P. Rees; "The Sampling of Air-borne Mine Dusts," by Dr. D. G. Skinner, Dr. A. G. Withers, Dr. J. H. Griffiths, and Mr. F. T. Williams; "The Examination of Air-borne Dust in Coal-Mines for the Evaluation of the Possible Health Hazard," by Dr. D. G. Skinner and Dr. J. H. Griffiths; "Types of Rock Encountered in Mining on the Witwatersrand and their Mineral Constitution," by Dr. R. J. Bridges. Admission to the conference is free, but applications to attend must be made on the prescribed form, obtainable from the secretary of either institution at Salisbury House, Finsbury Circus, London, E.C.2.

A meeting of the Middlesex County Medical Society will be held at West Middlesex County Hospital, Isleworth, on Tuesday, April 15, at 3.30 p.m., when Mr. R. L. Galloway will speak on "Peptic Ulceration" and Dr. M. M. Deane will show a colour film on "Partial Gastrectomy."

A general meeting of the Chelsea Clinical Society will be held at South Kensington Hotel, 41, Queens Gate Terrace, S.W., on Tuesday, April 15, at 6.30 p.m. for 7 p.m., when Mr. Duncan C. L. Fitzwilliams will read a paper on "Sir Thomas More and Utopia."

The annual meeting of the Society for the Study of Addiction will be held at the Medical Society of London, 11, Chandos Street, W., on Tuesday, April 15, at 4 p.m., when there will be a symposium on "The Uses of Amphetamine (Benzedrine)," to which Dr. W. R. Bett, Dr. H. Crichton-Miller, Dr. J. D. N. Hill, Dr. H. Pullar-Strecker, Dr. H. J. Shorvon, Dr. J. Yerbury Dent, Prof. R. C. Browne, and Dr. G. R. A. de M. Rudolf will contribute.

The Sylvanus Thompson Memorial Lecture will be delivered before the British Institute of Radiology (32, Welbeck Street, London, W.) on Thursday, April 17, at 8 p.m., by Prof. R. Sievert on "Dangers and Protection in Radiological Work."

The Third International Congress of Catholic Doctors will be held at Lisbon from June 17 to 23. Arrangements are being made for a party from this country to take part. Any Catholic doctor wishing to join the party will be welcome and should communicate as soon as possible with Dr. W. J. O'Donovan, O.B.E., 130, Harley Street, W.1 (Tel.: Welbeck 3349).

EPIDEMIOLOGICAL NOTES

More Smallpox Cases

During the past week smallpox has been diagnosed at Scunthorpe Borough, Lincs., and at Doncaster County Borough, Yorks., under circumstances suggesting association with the recent outbreak at Grimsby County Borough (*Journal*, March 8, p. 320, and March 15, p. 362). At Bilston Borough, Staffs., the importation of smallpox from India is suspected. At Stepney, London, one secondary case infected in Mile End Hospital was removed on March 21. Since then there have been no further notifications.

The Scunthorpe Borough case is an unvaccinated platelayer, 35 years old, resident in a common lodging-house, 2 Manley Street, Scunthorpe. He developed a rash on March 22 and was removed to an infectious diseases hospital on March 25, diagnosed as a case of chickenpox. On April 1 laboratory examination suggested smallpox, which was confirmed clinically on the following day. Contacts not recently vaccinated are numerous and secondary cases are already due to crop. One has been removed on suspicion. Two men who left Grimsby while under surveillance as contacts stayed at the common lodging-house at Scunthorpe at a material time. It is not improbable that other unidentified and itinerant contacts have moved on to other common lodging-houses, and special vigilance is indicated.

In Doncaster County Borough an assistant master at a preparatory school, vaccinated thirteen years previously, developed a rash on March 27 and was removed to Doncaster Smallpox Hospital on March 31. Modified smallpox has been confirmed. Fortunately this patient was confined to his residence from the date of appearance of the rash and is unlikely to have infected his pupils, who must, nevertheless, be under surveillance. The source of infection is unknown, but a link with Grimsby, through another contact there, is suspected.

The Bilston Borough case is that of a soldier vaccinated in infancy, in 1944 and in 1946. He travelled from Agra to Karachi by train and thence by air via Cairo and Marseilles to Heath Row. He reached Bilston on Feb. 23 and developed fever on March 2 and a few spots on March 5. Subsequently his mother, vaccinated in infancy, became ill on March 19 and developed a rash. Another unvaccinated contact sickened on March 23 and developed a rash two days later. Initially chickenpox was diagnosed, but variola virus has been cultured and there is now strong suspicion of smallpox. The rashes, reported to be superficial and centripetal, have obviously given rise to considerable difficulty in diagnosis.

Discussion of Table

In *England and Wales* the notifications of infectious diseases showed only small changes. There were decreases in the incidence of whooping-cough 130, acute pneumonia 41, and dysentery 25, and increases in the returns of diphtheria 28, scarlet fever 26, and measles 26.

A small decrease in the notifications of whooping-cough was shown in most areas; the only exception was Yorkshire, where the incidence remained practically unchanged. Yorkshire West Riding, with an increase of 43 in the returns for acute pneumonia, was the only exception to the general decline.

The largest change in the notifications of scarlet fever was a decrease of 28 in London. The rise in the incidence of diphtheria was contributed by three counties: Lancashire 12, London 11, and Glamorganshire 11. The largest rises in the notifications of measles were Leicestershire 164, Yorkshire West Riding 159, and Southampton 113; the largest falls were Lancashire 188, Cheshire 128, and Durham 90.

There were 13 cases of dysentery in Lancashire. Notifications of cerebrospinal fever were 7 above last week's total, which was the highest level for just over four years.

In *Scotland* the only variations in the notifications of infectious diseases were decreases in scarlet fever 37 and whooping-cough 30. A fall of 8 cases in the notifications of diphtheria was recorded in Glasgow.

In *Eire* the chief feature of the returns was a decrease of 110 in cases of whooping-cough. No further cases of whooping-cough were reported from the outbreak in Tipperary.

In *Northern Ireland* the outbreak of measles in Belfast C.B. continued to decline and only 58 cases were notified during the week.

Week Ending March 29

The notifications of infectious diseases in England and Wales during the week included: scarlet fever 1,317, whooping-cough 2,263, diphtheria 254, measles 10,780, acute pneumonia 1,025, cerebrospinal fever 115, dysentery 85, smallpox 1.

No. 12

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended March 22.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included). (b) London (administrative county). (c) Scotland. (d) Eire. (e) Northern Ireland.

Figures of Births and Deaths, and of Deaths recorded under each Infectious disease, are for: (a) The 126 great towns in England and Wales (including London). (b) London (administrative county). (c) The 16 principal towns in Scotland. (d) The 13 principal towns in Eire. (e) The 10 principal towns in Northern Ireland.

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1947 (a)	1947 (b)	1947 (c)	1947 (d)	1947 (e)	1946 (Corresponding Week) (a)	1946 (b)	1946 (c)	1946 (d)	1946 (e)
Cerebrospinal fever	114	10	33	11	—	67	5	58	1	1
Deaths		—	1				1	1		
Diphtheria	212	20	52	14	3	417	22	115	43	14
Deaths	3	—	—		—	6	1	—	1	—
Dysentery	48	—	17	—	—	332	26	74	1	—
Deaths					—				—	—
Encephalitis lethargica, acute	3	—	1	1	1	—	—	—	—	—
Deaths		—					—			
Erysipelas			46	8	2			55	10	2
Deaths		—					—			
Infective enteritis or diarrhoea under 2 years				28					53	
Deaths	76	13	17		1	55	7	6	9	2
Measles*	11,295	513	228	26	65	1,875	597	572	39	1
Deaths	18	1	—		11	3	—	5	1	—
Ophthalmia neonatorum	57	3	18	—	—	67	9	9	—	1
Deaths										
Paratyphoid fever	6	—	—	—	—	4	—	2(B)	—	—
Deaths	—	—	—		—	—	—	—	—	—
Pneumonia, influenzal	1,035	68	13	12	5	976	60	35	21	3
Deaths (from influenza)†	66	9	3		2	77	10	7	3	4
Pneumonia, primary			289	44				339	58	
Deaths		89			21		82		20	13
Polio-encephalitis, acute	1	—				1	—			
Deaths		—					1			
Poliomyelitis, acute	3	—	1	2	1	8	—	—	1	—
Deaths		—					1			
Puerperal fever		1	15		1		3	7		—
Deaths										
Puerperal pyrexia‡	169	4	13	1	1	142	5	18	—	—
Deaths		—					—			
Relapsing fever	—	—			—	—	—			—
Deaths										
Scarlet fever	1,362	86	178	18	52	1,325	104	192	12	37
Deaths	—	—	1		—	—	—	—	—	—
Smallpox	—	—	—	—	—	—	—	1	—	—
Deaths					—				—	—
Typhoid fever	1	—	1	4	4	6	—	1	9	—
Deaths	—	—	—		—	—	—	—	—	—
Typhus fever	—	—	—	—	—	—	—	—	—	—
Deaths					—				—	—
Whooping-cough	2,277	230	354	83	12	2,190	192	122	48	4
Deaths	24	5	7			6	—	1	1	—
Deaths (0–1 year)	374	75	89		21	478	69	73	35	16
Infant mortality rate (per 1,000 live births)										
Deaths (excluding stillbirths)	6,773	1100	846		186	6,197	972	846	257	168
Annual death rate (per 1,000 persons living)			17·6					18·6	16·5	
Live births	10,583	1627	1387		329	8,198	1199	1024	346	270
Annual rate per 1,000 persons living			27·9					20·6	22·2	
Stillbirths	272	28	42			245	32	42		
Rate per 1,000 total births (including stillborn)			29					39		

* Measles and whooping-cough are not notifiable in Scotland, and the returns are therefore an approximation only.

† Includes primary form for England and Wales, London (administrative county), and Northern Ireland.

‡ Includes puerperal fever for England and Wales and Eire.

Return of births and deaths for Eire for weeks ended March 8, 15, and 22 is not yet available.

Any Questions ?

Correspondents should give their names and addresses (not for publication) and include all relevant details in their questions, which should be typed. We publish here a selection of those questions and answers which seem to be of general interest.

Consanguineous Marriage

Q.—*What are the medical disadvantages of marriage between first cousins? The couple in question are very much in love.*

A.—One of the inescapable risks inherent in any marriage is that both partners may happen to carry the same harmful recessive gene. If they do the chance is one in four that any child will receive one from each parent and so be affected. In this way, often like a bolt from the blue, one, two, or more children in a sibship will be albinos or deaf-mutes, or will develop amaurotic idiocy or retinitis pigmentosa. In any given random marriage the risk is a small one, because such genes are rare and both partners will seldom carry the identical one. Blood relatives, however, share more of the same genes than do unrelated people, having, of course, received them from the same source. Actually, if a man carries a particular recessive gene, the chance is one in eight that a first cousin will also carry it. Thus the risk of a recessive defect appearing in the children is greater in a cousin marriage than in an unrelated alliance. But though relatively the risk is considerably increased, it still remains a small one absolutely; if there is no contraindication in the family history the risk is not of such an order that a wise couple knowing all the facts might be expected to decline. This particular couple might well feel that their affection for each other more than outweighs one relatively small additional risk in a project filled with risks, both genetic and non-genetic.

If, however, there is any history of the appearance of a recessive abnormality in either family, careful scrutiny of the family history would be necessary. Furthermore, in view of its presumed recessive mode of transmission, schizophrenia in either family would call for detailed investigation; this proviso might also be extended to definite schizoid personality. For a further discussion of the problems raised by cousin marriage see Roberts, *An Introduction to Medical Genetics*, Oxford University Press, 1940 (especially pp. 63–70).

Fluorescent Fungi

Q.—*What ringworm fungi fluoresce under Wood's light? Are such fungi identified according to their fluorescence under ultra-violet rays of known Ångström units? If so, what species react to light waves of 3,650 Å and 4,200 Å? References to work on this subject would be appreciated.*

A.—In the clinical field the microspora (human and animal) affecting hair fluoresce a bright greenish-yellow under Wood's light, which emits rays of 3,650 Å. Favus gives a similar but less brilliant fluorescence and endothrix infection a dull bluish-grey colour. Tinea versicolor appears golden-yellow under Wood's light. Cultures of fungi can within certain limits be identified according to their fluorescence, and this applies to the trichophyta as well as to those fungi mentioned above. Reference should be made to the *Introduction to Medical Mycology*, by G. M. Lewis and Mary Hopper (1943, Year Book Publications, Chicago), where the subject is fully discussed.

Cement Dust

Q.—*Is there any danger to health from cement dust: (1) to the workers in the factory; (2) to the people living in the vicinity?*

A.—A survey of seventeen cement plants supported previously held views that in comparison with the dust hazards from silica the problem in the cement industry is trivial. Prolonged inhalation of dust from finished cement produces such slight reaction that little or no abnormality is seen in the radiograph. In the group of 2,278 surveyed, the evidence of tuberculosis and other chronic infections of the lungs was less than that in the general population. Cement dust may cause conjunctivitis, slight catarrhal changes in the mucous membrane of the nose and upper air passages, and dermatitis. The effect of cement dust on people living in the vicinity of cement factories has not been the subject of medical research, although mention has been made (Standley, *Journal*, March 18, 1944, p. 412) of irritation of the eyes from falling particles. Methods of preventing or lessening the emission of dust from cement factories involve highly technical and specialized engineering questions, on which *Industrial Dust*, by P. Drinker and T. Hatch (McGraw Hill, London, 1936), may be consulted.

Cider and Rheumatism

Q.—*Are there any grounds for the current belief that cider drinkers do not suffer from rheumatism of the arthritic type? Does cider contain a large quantity of vitamin and yeast products which might be beneficial?*

A.—There are no grounds for the belief that cider drinkers do not suffer from the arthritic type of rheumatism. Cider does not contain a high quantity of vitamin or yeast products. Salicylic acid is often added to cider, sometimes in very large amount, and this may be the origin of the idea. It is obvious that the value of salicylic acid for acute rheumatic fever does not justify the conclusion that cider drinkers will be protected from rheumatoid arthritis because the cider contains salicylic acid.

Nervous Exhaustion

Q.—*What is meant by "nervous exhaustion"? Is there such a clinical entity? How may the condition be estimated and what treatment is advised?*

A.—The term "nervous exhaustion" usually refers to a condition of psychological origin, due to such causes as lack of incentive, strain, overwork, and an incapacity to cope with the problems of life; or to the fact that the patient, owing to earlier experiences, is making too great a demand on himself, with a consequent reaction in the opposite direction, and a subconscious refusal (though coupled with a conscious desire) to continue to make the effort. One often finds this conflict in those who were invalids as infants or premature babies, or lacked affection, so that life was a perpetual effort and strain, and this becomes a vicious habit even when the need for such effort has passed. The futile struggle ultimately breaks them down. But exhaustion, of course, accompanies vitamin deficiency of all kinds, as well as other biochemical disorders perhaps as yet unascertained, and it is not always easy to exclude the physiological factor. That a physiological factor cannot be found does not mean that it is not present. The term "nervous exhaustion" may generally be used of the biological failure or incapacity of the organism to face the demands of life, from whatever cause, combined with lack of incentive, and therefore lack of production and liberation of energy to meet those demands. Aetiologically we may distinguish between those conditions where for physiological reasons the individual is lacking in energy, and therefore incapable of meeting the demands of life, and those conditions in which there is lack of incentive in life, and therefore the necessary energy is not forthcoming. The lack of energy is in one case the cause and in the other the effect; but the symptoms are not unlike.

High Diastolic Pressure

Q.—*Patients who appear to be perfectly fit and able to do heavy work are often found to have an abnormally high diastolic pressure, and continue in this state for years. For example, one sometimes encounters a healthy, muscular man aged 40 or so with a blood pressure of 140/110, who has tachycardia and has had it for years. Such patients are often of the sympatheticotonic type and seem able to vary the pulse rate at will. What are the significance as regards prognosis, and the probable cause?*

A.—The systolic blood pressure is a measure of the pumping capacity of the left ventricle, whereas the diastolic pressure indicates the resistance against which it has to work. The higher the diastolic pressure the more work will the left ventricle have to perform to maintain an efficient circulation. A patient with a true diastolic pressure of 110 mm. and a well-compensated heart usually has a systolic pressure of over

170 mm., and only when failure sets in does the systolic pressure fall. In a healthy, muscular man with an apparent blood pressure of 140/110 this diastolic reading probably does not represent the true diastolic pressure. Errors may arise because compression of the arm in some subjects, particularly those of the sympatheticotonic type, causes reflex vasomotor spasm, so giving a false reading, or because the diastolic pressure is lower than it appears. It must be remembered that clinical methods of measuring blood pressure are rough and considerable margin for experimental error must be allowed, and the readings should be assessed in conjunction with the whole clinical picture.

Small Stature

Q.—*Can you suggest treatment for an undersized patient of 9½ years, weight 49 lb. (22.2 kg.) and well proportioned. He seems otherwise normal. The mother is above average height, the father average, but there are some rather diminutive aunts. Is the pituitary growth hormone, which has been tried successfully in California, commercially available?*

A.—The patient's small stature appears to be determined genetically, in view of the family history, but the mechanism is nevertheless through a deficiency of pituitary growth hormone. The condition is comparable to that of strains of dwarfed mice, which respond both to pituitary growth hormone and, to a less extent, to thyroid gland. The combined treatment is sometimes, but not invariably, successful in undersized children. There are two forms of pituitary growth hormone available in this country, but supplies are intermittent. The dosage is 5 ml. intramuscularly twice weekly, or, if practicable, 1 ml. daily or 3 ml. three times a week. The treatment should be continued for six-weekly periods, with an interval of six weeks to allow the antibodies that form to disappear from the blood. The thyroid could be given in 1-gr. (65-mg.) doses daily, and continued without intermission, provided the pulse rate is not unduly accelerated.

Diuretic Treatment of Adiposity

Q.—*Patients given urea crystals for obesity have not reported the diuretic effect anticipated. What is the rationale of giving urea in these cases, and has it any advantage over thyroid treatment? I take it that urea would be contraindicated in persons with signs of kidney disease, but is there any other associated danger?*

A.—Urea is given for its diuretic effect, the extra water being lost in an attempt to excrete the heavy doses of urea and keep the blood-urea at normal levels. An alternative is ammonium chloride in 7½-gr. (0.5-g.) enteric-coated tablets, 1 tablet thrice daily after food, or injections of a mercurial diuretic such as mersalyl. The diuretic treatment of adiposity is based on the fact that on limited diet obese patients lose weight for a while and then stop, and the effect of diuretics shows that this refractory stage is due to a retention of fluid. It is also postulated that normal adiposity is associated, at least in some cases, with retention of fluid, and many fat patients put on weight before menstruation and lose it after the period, the phenomenon being believed to be due to water retention. There is no real comparison between urea and thyroid because the chief action of the latter is to increase metabolism. Thyroid gland has, however, no specific effect on fat, and tends to catabolize protein at the same time as, or even before, fat. It is therefore of limited value in the treatment of adiposity. Urea is contraindicated in patients with renal insufficiency, but apart from this it cannot be regarded as a dangerous form of therapy.

Port-wine Naevus

Q.—*What is the prospect for a child of 2 with a port-wine naevus over about half her face? She is being treated with thorium X and has had four applications over a period of eighteen months. Is there any treatment, other than thorium, likely to succeed without leaving disfigurement?*

A.—Grenz-ray therapy (1,400 *r* units repeated at intervals of six months, on three or four occasions) is more effective than thorium X. Plastic surgery may be considered, but if some fading is achieved by the Grenz-ray therapy such disfigurement as remains may be concealed by the application of certain special cosmetic preparations.

Letters and Notes

A Method of Giving Penicillin

Dr. R. M. DOWDESWELL (Nairobi) writes: My attention was drawn to Dr. M. Machado Espinosa's letter (Feb. 1, p. 197) on "A Method of Giving Penicillin." The method is very similar to one which I described in a paper published in the *East African Medical Journal*, 1946, **23**, 139, and in a note in the same journal, 1946, **23**, 181. Since the publication of these trials the method described has been used in various hospitals and dispensaries in this Colony. At the Infectious Diseases Hospital, Nairobi, 1,121 cases of acute gonorrhoea have been treated during the last nine months using this technique of one injection of 150,000 units with blood, with 13 failures, which responded to a second similar injection.

Last Scarce Substances Order Revoked

The Scarce Substances Order, 1946, No. 490, which confirmed and established authorized alternatives for liquid extract of ipecacuanha and for tincture of ipecacuanha was revoked on March 1, 1947. This means that whenever liquid extract of ipecacuanha or tincture of ipecacuanha is ordered on a prescription it must be dispensed. This revocation ends all the Scarce Substances Orders made by the Ministry of Health during the war.

Pseudo-hermaphrodite

Mr. R. OGIER WARD (London, W.) writes: With reference to the case of the pseudo-hermaphrodite described in "Any Questions?" (March 8, p. 322) and the advice given that if the sex remained in doubt the child should be brought up as a male and ultimately be sent to a boys' school, an African student in Uganda was pressed by the examiner in forensic medicine as to how to decide the sex in such cases, "for, you see, some day the child will have to go to school." After some thought the student replied, "Sir, I send it to a mixed school."

Shortage of Nurses

SPERO MELIORA writes: My daughter, who is a S.R.N., has just returned to the metropolis to a midwifery training centre to do the district work for her S.C.M. She writes: "We are in the next-door house—three of us in one room on the ground floor. Sanitation consists of a '*pot*,' as we are not supposed to use the lavatory in the house. The problem is emptying it—so we use the lavatory. Washing is next door." On arrival (after a journey seriously delayed by the weather and without food) her supper, at 9.30 p.m., consisted of beans, toast, and tea, which she had to reheat. She is not complaining—merely stating facts. I regret that I cannot have my name published with this letter—victimization is not unknown.

Sodium Morrhuate Injections

Mr. G. H. COLT (London, W.) writes: My acquaintance with the literature of varicose vein injection is not as complete as it was ten years ago. The sudden, dangerous symptoms and signs of rapid onset are generally attributed to anaphylaxis. I venture to think they may easily be due to fat-embolism. The injection of an oil into the blood stream, even slowly, is asking for trouble. G. N. Clark pointed out many years ago (I have not got the reference now) that fat-embolism was frequently missed post mortem. An authoritative summary in such cases would be of great value. Those with facilities for animal experiment could easily settle some of the points.

Correction

In our report of Sir Andrew Davidson's speech at the Council of Social Service Conference (*Journal*, March 15, p. 346) the word "pulmonary" in the third line of the second paragraph should read "*non*-pulmonary."

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